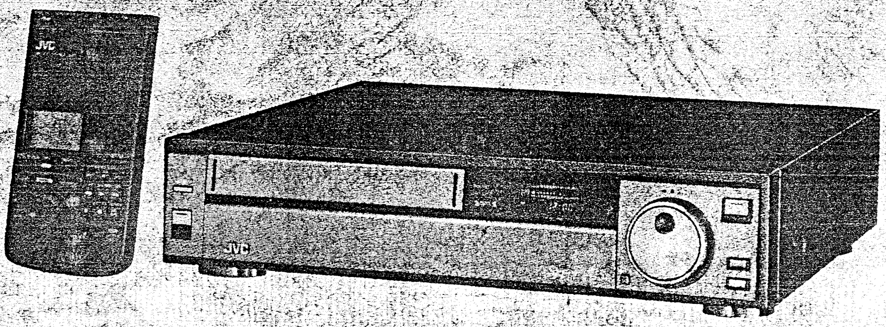
JVC

SERVICE MANUAL

Hi-Fi STEREO VIDEO CASSETTE RECORDER

HR-S5800E/EG



S-VHS 625 VHS PAL

SPECIFICATIONS *(The Specifications shown Pertain Specifically to The Model HR-S5800E)*

GENERAL

Power requirement	AC 220 V∼, 50/60 Hz
Power consumption	40 W
Temperature	5°C to 40°C (Operating) −20°C to 60°C (Storage)
Operating position	Horizontal only
Dimensions (WxHxD)	435 x 102 x 390 mm
Weight	7.0 kg
Format	S-VHS/VHS PAL standard
Tape width	12.65 mm
Tape speed (SP)	23.39 mm/sec
(LP)	11.70 mm/sec
Maximum recording time	
(SP)	240 min. with E-240 video cassette
(LP)	480 min. with E-240 video cassette

VIDEO

Signal system	PAL colour and separated Y/C signals, 625 lines/50 fields
Recording system	Rotary two-head helical scan system with slant double-azimuth combination video heads
Input	0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output	1.0 Vp-p, 75 ohms, unbalanced
Signal-to-noise ratio	43 dB (Rohde & Schwarz noise meter) with PICTURE SHARPNESS control at centre position
Horizontal resolution	More than 400 lines (S-VHS)/250 lines (VHS) with PICTURE SHARPNESS control at centre position

AUDIO

Input	Mic;-67 dBs, high impedance, unbalanced AUDIO IN connector (RCA x 2): -8 dBs, more than 50 k-ohms, unbalanced AUDIO/VIDEO socket (21-pin Peri connector): -3.8 dBs, (CENELEC standard), 10 k-ohms, unbalanced
Output	AUDIO/VIDEO socket (21-pin Peri connector): -3.8 dBs, (CENELEC standard), high-impedance load AUDIO OUT connector (RCA x 2): -6 dBs, high-impedance load less than 1 k-ohm, unbalanced (100 k-ohms, load)

NORMAL AUDIO

Recording system	Longitudinal track
No. of audio channels	1 (monaural)
Frequency range	70 Hz to 10,000 Hz

Hi-Fi AUDIO

Recording system	Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of audio channels	2 Hi-Fi audio channels
Frequency response	20 Hz to 20,000 Hz
Dynamic range	More than 90 dB
Wow and flutter	Less than 0.005% WRMS

TUNER

Tuning system	Frequency synthesized tuner
TV channel storage capacity	48 positions (+ AUX position "AU")
Channel coverage	VHF 47 – 111 MHz 111 – 300 MHz 302 – 470 MHz UHF 470 – 862 MHz
Aerial output	UHF channel 36 (adjustable 32 – 40)

TIMER

Clock reference	Quartz-crystal
Programme capacity	1-year/8-programme timer
Memory back-up time	60 min.

ACCESSORIES

Provided accessories	Aerial cable, Infrared remote control unit, "R6" battery x 4, Audio cable (RCA-RCA), S-Video cable (4-pin/4-pin), S-VHS cassette tape (SE-180)
Optional accessories	VPS adapter VU-V110E VPV adapter VU-V120E VPS/VPV adapter VU-V100E VPT adapter VU-V140E VPS/VPT adapter VU-V150E RGB signal converter KM-V7EG

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

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No. 82200
October 1990

NOTE: For a technical description, please refer to Technical Guide VTG82057 HR-S5800 PAL.

TABLE OF CONTENTS

Section **Title** **Page**

Important Safety Precautions

INSTRUCTIONS

1. DISASSEMBLY AND MECHANISM ADJUSTMENTS

1.1 DISASSEMBLY 1-1
1.1.1 Top cover 1-1
1.1.2 Front panel assembly 1-1
1.1.3 Bottom cover 1-1
1.1.4 VIDEO I board assembly 1-1
1.1.5 Cassette housing 1-2
1.1.6 Cassette housing installation 1-2
1.1.7 Main-deck 1-2
1.2 MECHANISM ADJUSTMENTS 1-3
1.2.1 Precautions 1-3
1.2.2 Check without cassette housing 1-3
1.2.3 Manually removing cassette tape 1-3
1.2.4 Test equipment 1-3
1.3 MAIN MECHANSIM PARTS 1-4
1.4 INSPECTION AND MAINTENANCE 1-6
1.4.1 Suggested servicing schedule for main components. 1-6
1.5 MAIN PARTS REMOVAL AND REPLACEMENT 1-7

2. ELECTRICAL ADJUSTMENTS

2.1 PREPARATION 2-1
2.1.1 Required test equipment 2-1
2.1.2 Check and adjustment steps 2-2
2.3 SWITCHING REGULATOR CIRCUIT 2-3
2.4 TIMER CIRCUIT 2-3
2.5 SERVO CIRCUIT 2-4
2.6 VIDEO CIRCUIT 2-5
2.7 AUDIO CIRCUIT 2-11
2.8 TUNER/IF CIRCUIT 2-12
2.9 PREAMP CIRCUIT 2-14
2.10 DEMODULATOR CIRCUIT 2-17
2.11 ON SCREEN CIRCUIT 2-18

3. CHARTS AND DIAGRAMS

3.1 CIRCUIT BOARD AND LOCATION 3-1
3.2 GENERAL INFORMATION 3-2
3.2.1 Connections 3-2
3.2.2 Disconnecting the flatwire 3-2
3.2.3 Indications 3-2
3.2.4 Schematic diagram values 3-2
3.2.5 Signal flow in the schematic 3-2
3.2.6 Semiconductors 3-3
3.2.7 Replacement of chip parts 3-3
3.3 BOARD INTERCONNECTIONS 3-5
3.4 POWER SYSTEM BLOCK DIAGRAM 3-7
3.5 SWITCHING REGULATOR BLOCK DIAGRAM 3-9
3.6 AUDIO BLOCK DIAGRAM 3-11
3.7 SERVO BLOCK DIAGRAM 3-13
3.8 VIDEO BLOCK DIAGRAM (EE, REC) 3-15
3.9 VIDEO BLOCK DIAGRAM (PB) 3-19
3.10 SW REG, REGULATOR (1), (2) AND PRIMARY SCHEMATIC DIAGRAMS 3-13
3.11 SW REG, REGULATOR (1), (2) AND PRIMARY CIRCUIT BOARDS 3-25
3.12 SERVO SCHEMATIC DIAGRAM 3-27
3.13 AUDIO SW AND SOUND MEMU SCHEMATIC DIAGRAMS 3-29
3.14 SYSTEM CTL SCHEMATIC DIAGRAM 3-31
3.15 DECK TERMINAL, LOADING MDA, CAPSTAN MDA, C. HOUSING SCHEMATIC DIAGRAMS 3-33
3.16 DECK TERMINAL, LOADING MDA, C. HOUSING, A/C HEAD CIRCUIT BOARD 3-34
3.17 ON SCREEN SCHEMATIC DIAGRAM 3-35
3.18 A/S/M TERMINAL AND SOUND MENU CIRCUIT BOARDS 3-37
3.19 VIDEO UNIT SCHEMATIC DIAGRAM 3-40
3.20 VIDEO UNIT CIRCUIT BOARD 3-43
3.21 VIDEO SUB SCHEMATIC DIAGRAM 3-43
3.22 VIDEO SUB CIRCUIT BOARD 3-45
3.23 TERMINAL SCHEMATIC DIAGRAM 3-45
3.24 VIDEO INTERFACE SCHEMATIC DIAGRAM 3-46
3.25 VIDEO INTERFACE CIRCUIT BOARD 3-49
3.26 AUDIO UNIT SCHEMATIC DIAGRAM 3-51
3.27 AUDIO UNIT CIRCUIT BOARD 3-53
3.28 IF AND TUNER CONTROL SCHEMATIC DIAGRAMS 3-55
3.29 IF AND TUNER CONTROL CIRCUIT BOARDS 3-57
3.30 DEMODULATOR SCHEMATIC DIAGRAM 3-59
3.31 DEMODULATOR CIRCUIT BOARD 3-61
3.32 TIMER, SW/DISPLAY, IFR AND MEMBRANE SCHEMATIC DAIGRAMS 3-63
3.33 TIMER, SW/DISPLAY AND IFR CIRCUIT BOARDS ... 3-65
3.34 PRE AMP AND FLYING ERASE SCHEMATIC DIAGRAMS 3-67
3.35 PRE AMP AND FLYING ERASE CIRCUIT BOARDS... 3-69
3.36 REC AMP SCHEMATIC DIAGRAM 3-72
3.37 REC AMP CIRCUIT BOARD 3-75
3.38 CONTROL SCHEMATIC DIAGRAM 3-77
3.39 CONTROL CIRCUIT BOARD 3-77
3.40 REMOTE CONTROL SCHEMATIC DIAGRAM 3-79
3.41 RF CONVERTER AND MIXBOOSTER SCHEMATIC DIAGRAM 3-80

4. EXPLODED VIEWS AND PARTS LIST

4.1 PACKING ASSEMBLY< M1> 4-1
4.2 CABINET ASSEMBLY< M2> 4-2
4.3 CHASSIS ASSEMBLY< M3> 4-3
4.4 MECHANISM ASSEMBLY < M4> 4-4
4.5 REMOTE CONTORL UNIT < M5 > 4-6

5. ELECTRICLA PARTS LIST

SWITCHING REGULATOR BOARD ASSY< 01 >< 02 ><18> 5-1
A/S/M BOARD ASSEMBLY< 04><71> 5-3
VIDEO UNIT BOARD ASSEMBLY <05> 5-8
TUNER UNIT BOARD ASSEMBLY< 07 ><08 ><14 > 5-11
AUDIO UNIT BOARD ASSEMBLY< 09> 5-14
VIDEO INTERFACE BOARD ASSEMBLY < 10> 5-16
A/C HEAD BOARD ASSEMBLY <12 > 5-22
VIDEO SUB BOARD ASSEMBLY <15 > 5-22
TIMER BOARD ASSEMBLY < 20 > 5-23
CTL/IFR BAORD ASSEMBLY < 24><34> 5-24
SWITCH/DISPLAY BOARD ASSEMBLY <28 > 5-24
PRE AMP BOARD ASSEMBLY< 42 > 5-25
REC BOARD ASSEMBLY< 43 > 5-26
FLYING ERASE BOARD ASSEMBLY< 46 > 5-29
DECK TERMINAL BOARD ASSEMBLY < 51><55 > 5-30
CASSETTE HOUSING BOARD ASSEMBLY< 56 > 5-30
UPPER DRUM BOARD< 62 ><63> 5-30

6. TECHNICAL INFORMATIONS

6.1 CIRCUIT CONTROL CPU 6-1
6.2 TIMER CPU 6-2

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1. The Instructions shown pertain specifiecally to the Model HR-S5800E. For detailed descriptions, be sure to consult the Instruction booklets of the other Models.
2. The following table lists the differing points between Models (HR-S5800E and HR-S5800EG) in this series.

Model Item			HR-S5800EG	HR-S5800E
TV TUNER	Channel coverage	VHF	47 to 111 MHz	← *1)
			111 to 300 MHz	← *1)
			No	302 to 470 MHz
		UHF	470 to 862 MHz	← *1)
TIMER	Memory back-up time		Minimum 3 min	60 min
	VPS		Built-in	Option (VU-V110E)
TELETEXT	VPV		Option (VU-V120E) *2)	Option (VU-V100E) *3)
	VPT (with TOP) *4)		Option (VU-V140E) *2)	Option (VU-V150E) *3)

Notes: **1) ← The same as model at left.*
**2) VU-V120E/VU-V140E without VPS*
**3) VU-V100E/VU-V150E with VPS*
**4) TOP: TOP of page*

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

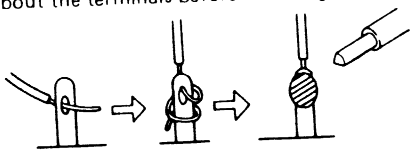


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

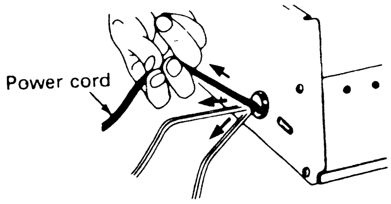


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

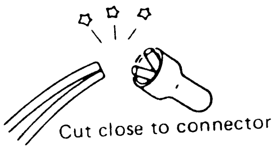


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

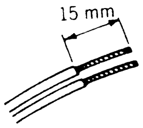


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

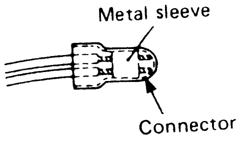


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

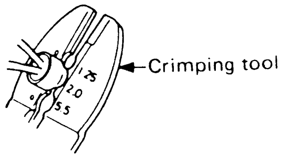


Fig. 6

(5) Check the four points noted in Fig. 7.

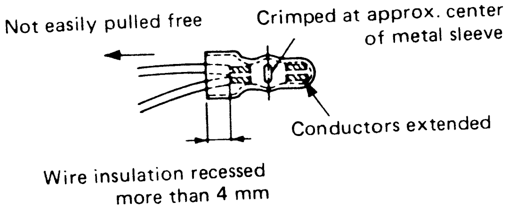

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

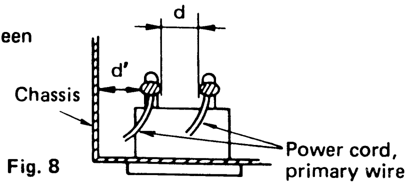


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

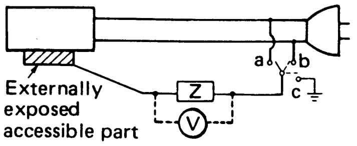


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

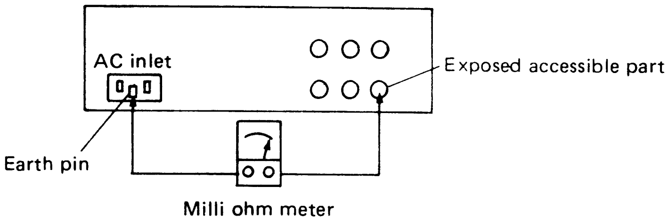


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

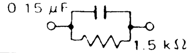
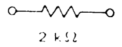
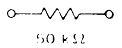
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	 0 15 μF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	 2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		 50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS

SAFETY PRECAUTIONS

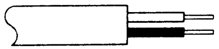
The rating plate and the safety caution are on the rear of the unit.

WARNING — DANGEROUS VOLTAGE INSIDE
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

IMPORTANT (In the United Kingdom)
Mains Supply (240 V∿, 50 Hz only)

IMPORTANT

Do not make any connection to the Larger Terminal coded E or Green. The wires in the mains lead are coloured in accordance with the following code:



If these colours do not correspond with the terminal identifications of your plug, connect as follows:
Blue wire to terminal coded N (Neutral) or coloured Black.
Brown wire to terminal coded L (Live) or coloured Red.
If in doubt — consult a competent electrician.

CAUTION

- When you are not using the recorder for a long period of time, it is recommended that you disconnect the power cord from the AC outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the AC outlet prior to connecting or disconnecting any signal lead or aerial.

Omkopplaren OPERATE på denna apparat är sekundärt kopplad och skiljer inte apparaten från nätet i läge OPERATE OFF.

The OPERATE button does not completely shut off mains power from the unit, but switches operating current on and off.

BEMAERK: I stilling OFF er apparatet stadig forbundet med lysnettet Hvis det ønskes fuldstændig afbrudt skai netledningen trækkes ud.

This unit is produced to comply with Directives 76/889/EEC, 82/499/EEC, 87/308/EEC and Standard IEC Publ. 65.

WARNING

The switched AC outlet should not be used for connection of TVs and other apparatus in which unintended switching could result in fire or other hazard.

IMPORTANT: It may be unlawful to record or play back copyrighted material without the consent of the copyright owner.

Video tapes recorded with this video recorder in the LP (Long Play) mode cannot be played back on a single-speed video recorder.

Cassettes marked "S-VHS" and "VHS" can be used with this video cassette recorder. However, S-VHS recordings are possible only with cassettes marked "S-VHS".

WARNING

Regarding S-VHS recordings:

Since the S-VHS Euro System is a unified standard, S-VHS recordings are the same regardless of whether the original signal is PAL or SECAM. However, this recorder operates only in the VHS mode for recording a SECAM signal.

1. S-VHS recording is not possible when the input signal is SECAM.
2. When this is attempted, the S-VHS indicator goes off and the VHS recording circuit is automatically engaged.
3. The resulting tapes have the same limitations as described in "Regarding VHS recordings".

Regarding VHS recordings:

There are two different types of SECAM colour systems: SECAM-L, used in FRANCE (also called SECAM-West), and SECAM-B, used in the GRD, e.g. (also called SECAM-East).

1. This recorder can also receive SECAM-B colour television signals for recording and playback.
2. Recordings made of SECAM-B television signals produce monochrome pictures if played back on a video recorder of SECAM-L standard, or do not produce normal colour pictures if played back on a PAL video recorder with SECAM-B system incorporated (even if the TV set is SECAM-compatible).
3. SECAM-L prerecorded cassettes or recordings made with a SECAM-L video recorder produce monochrome pictures when played back with this recorder.
4. This recorder cannot be used for the SECAM-L standard. Use a SECAM-L recorder to record SECAM-L signals.

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PRECAUTIONS

VIDEO RECORDER

Handling and storage

- Avoid using the recorder under the following conditions:
  - — extremely hot, cold or humid places,
  - — dusty places,
  - — near appliances generating strong magnetic fields,
  - — places subject to vibrations, and
  - — poorly ventilated places.
- Be careful of moisture condensation.
- Avoid using the recorder immediately after moving from a cold place to a warm place. The water vapour in warm air will condense on the still-cold video head drum and tape guides and may cause damage to the tape and the recorder.
- Handle the recorder carefully
  - • Do not block the ventilation openings.
  - • Do not place anything heavy on the recorder.
  - • Do not place anything which might spill and cause trouble on the top cover of the recorder.
  - • Use in horizontal (flat) position only.
- In case of transportation,
  - • Avoid violent shocks to the recorder during packing and transportation.
  - • Before packing, be sure to remove the cassette from the recorder.

Moisture condensation

- If you pour a cold liquid into a glass, water vapour in the air will condense on the surface of the glass. This is called moisture condensation.
- Moisture condensation on the head drum, one of the most crucial parts of the video recorder, will cause damage to the tape.
- Moisture condensation is apt to occur under the following conditions:
  - — when the recorder is moved from a cold place to a warm place, and
  - — under extremely humid conditions.
- In conditions where moisture condensation may occur, keep the power cord plugged in an AC outlet and the power switched on; this will help prevent condensation from occurring. When condensation has occurred, it will not evaporate quickly once the power is switched on. Wait a few hours for the recorder to become dry.

VIDEO CASSETTES

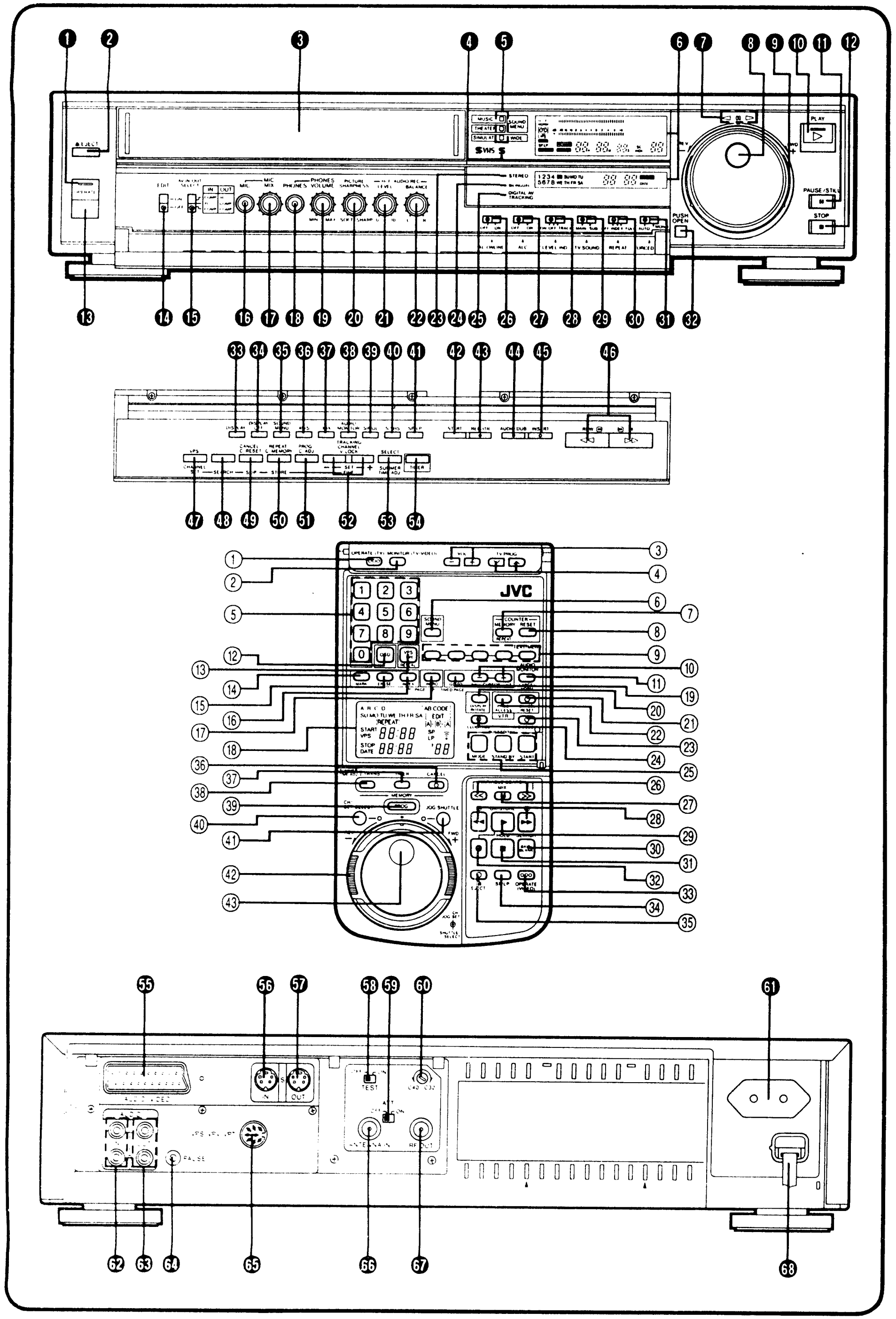
- Avoid exposing the cassettes to direct sunlight. Keep them away from heaters.
- Avoid extreme humidity, violent vibrations or shocks, strong magnetic fields (near a motor, transformer or magnet) and dusty places.
- Place the cassettes in cassette cases and position vertically.

REMOTE CONTROL UNIT

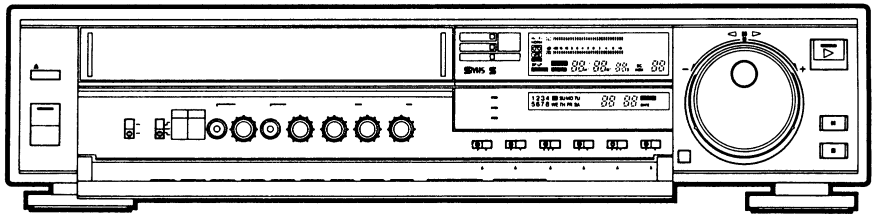
- Avoid violent shocks, especially take care not to drop the unit.
- Take care not to allow liquid to spill into the unit.
- Do not place heavy objects on the unit.
- Avoid leaving the unit in places subject to direct sunlight or extremely high temperatures.

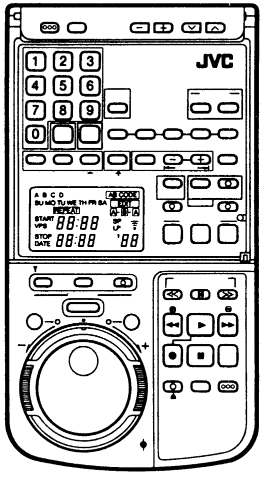
CONTENTS

Features 3
Controls, indicators, and connectors
  Front panel 4
  Rear panel 6
  Remote control unit 6
  Remote control A/B code switching 8
Child Lock function 9
Display panel indications 9
Information on the S-VHS system 10
Connections
  Aerial and RF connection 11
  SCART connection 11
  Video channel setting 12
  To a stereo system 13
On-screen mode display 14
Clock setting
  Setting the built in clock 15
  Setting the LCD clock of the remote control unit 16
Operating the built-in tuner 17
Information on the audio system 19
Loading and unloading a cassette 22
  Usable cassettes and their recording time
  Accidental erasure prevention
Playing back a video cassette 23
  Digital AV Tracking system
Convenient facilities related to playback 24
  Skip search
  Memory play
  Repeat playback
Special-effects playback with jog/shuttle controls 25
Special-effects playback with other buttons 26
  Still playback and frame advance
  High-speed forward search
  High-speed reverse search
  Variable-speed search and slow motion
Basic operation for recording TV programmes 27
  Recording one TV programme while watching another
Other recording possibilities 28
Convenient facilities related to recording 29
  Remaining tape time indication
  Elapsed recording time indication
  Blank search
  Retake function
Instant timer recording 30
  24-Hour timer
  Off-timer
Automatic timer recording
  Local programming (with recorder's controls and FDP) 31
  On-screen remote programming (with remote's controls and TV screen) 31
  Independent remote programming (with remote's controls and LCD) 32
VPS recording 33
Audio dubbing 33
Convenient tape access functions
  Realtime tape counter 34
  Realtime Search 34
  Realtime Go-To 34
  Counter memory function 34
  Index Search 35
  Manual Index Mark/Erase 35
  Intro Search 35
Recording from an external source 36
  Recording via the AUDIO/VIDEO socket
  Recording via the S IN connector
  Editing to another video recorder
  Editing from a VideoMovie
Duet Editing 37
Insert editing 38
In case of difficulty 39
Head cleaning 40
Specifications 41
Teletext compatibility 42



FEATURES





VCR

- Super VHS pictures with horizontal resolution of more than 400 lines.
- Hi-Fi VHS stereo sound with more than 90-dB dynamic range.
- Sound Menu system to choose sound effect modes from among Stereo Wide Music, Stereo Wide Theater, Simulated Stereo Music, and Simulated Stereo Theater.
- Super DA-4 head system for high-quality pictures in all modes including special-effects playback.
- Multi-purpose Jog/Shuttle control dials and full array of advanced editing functions including Insert Editing and Audio Dubbing.
- Quick-response full-loading mechanism minimizes waiting time: one second from Stop to Play.
- Digital AV Tracking for immediate automatic adjustment to optimum Hi-Fi audio and video tracking.
- PLL frequency-synthesized wide-band cable tuner with 48-channel storage capacity.
- Flexible timer programming options: 24-hour timer, 1-year/8-programme timer, and off-timer.
- Sound-Multiplex decoder.
- Intelligent On-Screen Display system.

REMOTE CONTROL UNIT

- Independent timer programming with 4 programme memories and built-in LCD screen.
- Multi-purpose Jog/Shuttle control dials.
- Blank Search for locating the end of a recorded section with automatic display of remaining tape time.
- A complete array of Realtime and Index search functions, plus Skip Search.
- Fast- and slow-motion playback at various speeds in both directions.
- Duet Editing for simultaneous control of two JVC decks in editing.
- Teletext compatibility (with optional adapter).

Other major features

● Automatic repeat playback ● Retake function ● Instant "summer time" adjustment ● Child Lock system ● Display OFF function ● Automatic functions including Next-Function Memory ● Picture sharpness control ● Preroll-capable REMOTE PAUSE

CONTROLS, INDICATORS AND CONNECTORS

Refer to diagrams on the front foldout page.

Front panel

① **OPERATE button with LED indicator**
Press to apply operating power to the recorder. The LED indicator will light. Loading a cassette also turns the power on.

② **EJECT button**
Press while in the Stop mode to eject the tape.

③ **Cassette loading slot**
Insert a VHS cassette. The door will close and the "cassette loaded" indicator will appear on the FDP (fluorescent display panel).

④ **S-VHS mode indicator**
Lights when a cassette marked S-VHS is inserted, showing that the recorder is in the S-VHS mode. To record in the VHS mode with an S-VHS cassette, cancel the S-VHS mode by pressing the S-VHS button ㊵. In playback, S-VHS recordings are automatically detected and played back in the S-VHS mode.

⑤ **Sound Effect indicators**
These indicators light in different combinations according to the setting of the SOUND MENU button ㉟.

MUSIC: Lights together with SIMULATE/WIDE when the SOUND MENU button is set to the Stereo Wide Music or Simulated Stereo Music mode. Both the lows and highs of the sound frequency spectrum will be boosted.

THEATER: Lights together with SIMULATE/WIDE when the SOUND MENU button is set to the Stereo Wide Theater of Simulated Stereo Theater mode. The lows of the sound frequency spectrum will be boosted.

SIMULATE/WIDE: Lights green for SIMULATE, and red for WIDE, together with either MUSIC or THEATER. In the WIDE setting, the stereo-wide effect will be added to the stereo sound, while in the SIMULATE setting the monaural sound will be heard as a simulated stereo sound.

⑥ **Fluorescent Display Panel (FDP)**
(See page 9.)

⑦ **Still/Jog/Search indicators**
Light to show tape status and direction of movement.

⑧ **JOG dial (inner control)**
Use for jog search, for timer and clock setting, and for channel selection.

⑨ **SHUTTLE ring (outer control)**
Use for variable-speed search, and for timer and clock setting.

⑩ **PLAY button**
- Press to play back a tape.
- Press to cancel the Special-Effects Playback mode. (See page 26.)
- Press to start recording from the Record-Pause mode.
- Press to start audio dubbing from the Audio Dub Standby mode.

⑪ **PAUSE/STILL button**
- Press while in the Record mode to stop the tape temporarily to avoid recording of unwanted material.
- Press while in the Play mode to view a still picture.
- The still picture can be advanced each time this button is pressed.

⑫ **STOP button**
Press to stop the tape.

⑬ **Infrared beam receiving window**

⑭ **EDIT switch**
Normally set to OFF. For making multi-generation dubs, set it to the ON position. (See page 36.)

⑮ **AV IN/OUT SELECT switch**
Selects the input or output signal via the 21-pin AUDIO/VIDEO socket (55). Set this switch as required for TV connection, or for external source recording and editing. (See pages 11 and 36.)

⑯ **MIC jack**

⑰ **MIC MIX control**
For control of the microphone input level for microphone-mix recording via the MIC jack ⑯. When making an adjustment, connect a pair of headphones to monitor the input level.

⑱ **PHONES jack**

⑲ **PHONES VOLUME control**
Adjusts the level of audio output from the headphone jack.

⑳ **PICTURE SHARPNESS control**
Turn this knob clockwise to make the picture sharper. Turn counterclockwise to give the picture a softer tone. Effective only for playback pictures. (No effect on recording.)

㉑ **Hi-Fi AUDIO REC LEVEL control**
Turn this control knob regerring to the audio level indicators on the display panel. When the indicators light up to or near 1 dB for the loudest input signal, the recording level is optimum.

㉒ **Hi-Fi AUDIO REC LEVEL BALANCE**
Adjusts the L and R channels relative to each other. Turn counterclockwise to boost the hi-fi audio left-channel recording level; clockwise to boost the right-channel recording level.

㉓ **STEREO indicator**
Lights when a stereo programme is being received.

㉔ **BILINGUAL indicator**
Lights when a bilingual programme is being received.

㉕ **DIGITAL AV TRACKING indicator**
Lights in the Digital AV Tracking mode. Blinks while adjusting. (See page 23.)

㉖ **AC ONLINE switch**

OFF position: Power is available from the rear panel AC outlet regardless of whether the recorder is on or off.

ON position: Power is available from the rear panel AC outlet only when the recorder is on. When used in combination with the built-in timer, this enables timer-controlled power supply for the connected equipment.

㉗ **ALC (Automatic Level Control) switch**
Set to OFF when adjusting the hi-fi audio recording level manually.

㉘ **LEVEL IND. switch**
Selects the function of the audio level indicators/Hi-Fi tracking meter. (See page 20.)

㉙ **TV SOUND select switch**

MAIN: To record the main soundtrack (local language).

SUB: To record the sub soundtrack (foreign language). (See pages 19 and 28.)

㉚ **REPEAT switch**

FULL: To play back the entire tape repeatedly.

INDEX: To play back a segment between two adjacent index codes. (See page 24.)

OFF: No repeat playback.

㉛ **FORCED switch**
Set to MONO when the quality of the stereo sound being received is poor. The broadcast will be received in monaural with improved results. (See page 28.)

㉜ **PUSH OPEN button**
Press to open the foldout control panel. To close the panel, lift it up and press in.

㉝ **DISPLAY button**
Press to switch the display between the realtime tape counter, remaining tape time, and date. Also press to change the display from the Timer Set mode to the Clock mode.

㉞ **DISPLAY OFF button**
To turn off indications on the front panel.

㉟ **SOUND MENU button**
To select the sound effect mode. Each time the button is pressed, the sound effect mode changes in the following order: Stereo Wide Music, Stereo Wide Theater, Simulated Stereo music, Simulated Stereo Theater, then OFF. The indicators ⑤ will light to show the slelected mode.

㊱ **AV/S button**
While in the AUX mode, select S or AV according to the source connection.

S: When recording a source connected to the S IN connector (56), press this button so that the "S" indicator lights on the FDP.

AV: When recording a source connected to the AUDIO/VIDEO socket (55), press this button so that the "S" indicator does not light on the FDP.

㊲ **MIX button**
Press to select for listening among either the hi-fi or normal soundtracks or a mixture of the two. (See page 20.)

㊳ **AUDIO MONITOR button**
Each time this button is pressed, the audio channel to be output changes and is indicated by the L and R indicators on the FDP. (See page 20.)

㊴ **SIMUL button**
When recording FM simulcast TV programmes, press this button (anytime, except when in the AUX mode) to set to the simulcast mode. "SC" will light on the FDP, and the video from the built-in tuner and the hi-fi audio signals from the rear panel AUDIO IN connectors will be recorded. (See page 28.)

㊵ **S-VHS button**
Selects between S-VHS and VHS recording modes. S-VHS recordings are possible only when S-VHS cassettes are used in the S-VHS recording mode. (See page 10.)

㊶ **SP/LP button**
Press to select the recording speed.

㊷ **START button**
Press to engage the 24-Hour Instant Timer Set mode. (See page 30.)

㊸ **REC/ITR button**
- Press once to start recording.
- Press twice to engage the Instant Timer Recording mode.
- Also use to set the required recording time in the 24-Hour Instant Timer Set mode.

㊹ **AUDIO DUB button**
Press while in the Still mode, then press the PLAY button ⑩ to start audio dubbing.

㊺ **INSERT button**
Press for insert editing. (See page 38.)

㊻ **REW/FF/Shuttle Search button**
- Press while in the Stop mode to rewind or fast-forward the tape.
- Press while in the Play mode for Shuttle Search in the reverse or forward direction.

㊼ **VPS/CHANNEL SET button**
This is a dual-function button.
- as a VPS button — press to enter the VPS command while in the Timer Set mode.
- as a CHANNEL SET button — press to engage the Real Channel mode.

㊽ **SEARCH button**
Press to initiate real channel automatic scan tuning. (See page 18.)

㊾ **CANCEL/C. RESET/SKIP button**
This is a triple-function button.
- as a CANCEL button — press to cancel the programmed data in the Timer Set mode.
- as a C. RESET button — press to reset the realtime counter reading to "0H 00M 00S".
- as a SKIP button — press to skip unnecessary channels in the Real Channel mode.

㊿ **REPEAT/C. MEMORY/STORE button**
This is a triple-function button.
- as a REPEAT button — press to enter the repeat command in the Timer Set mode.
- as a C. MEMORY button — press to engage the Counter Memory mode.
- as a STORE button — press to store the tuned-in channel in the Real Channel mode.

(51) **PROG./C. ADJ. button**
Press to change the recorder's mode in the following order: Clock mode, Timer Set mode, Clock Set mode, then return to the Clock mode.

(52) **TRACKING/CHANNEL/V. LOCK/SET/FINE (-/+) buttons**
These buttons have five functions.
- as TRACKING buttons — press both to cancel the automatic Digital AV Tracking mode, then press either for manual tracking control. (See page 23.)
- as CHANNEL buttons — press either button to scan to a desired channel.
- as V. LOCK buttons — press either to reduce vertical vibrations, if observed in the Still mode.
- as SET buttons — press to set the correct data in the Clock Set or Timer Set mode.
- as FINE buttons — press to shift the frequency in either direction to fine-tune in a specific station in the Real Channel mode.

(53) ***SELECT/SUMMER TIME ADJ. button***

This is a dual-function button.

- as a SELECT button — press to select the item to be set in the Clock Set, Real Channel or Timer Set mode.
- as a SUMMER TIME ADJ. button — press and quickly release to advance the clock by one hour, hold it pressed for 2 seconds to set the clock back by one hour (See page 15.)

(54) **TIMER button**

Press to engage the Timer Standby mode.

Rear Panel

(55) **AUDIO/VIDEO socket**

A 21-pin standardised audio/video input/output socket for AV connection to a TV or a 2nd video recorder. The input to this socket can be recorded in the AUX mode ("AU" in the channel display) when the AV/S button pressed so that the "S" indicator does not appear on the FDP. The input to and output from this socket are selected with the AV IN/OUT SELECT switch ⓯.

(56) **S IN connector**

A special S-VIDEO input connector (4-pin). To record from this terminal, connect an appropriate source to this terminal using the provided S-VIDEO cable. Use the AUDIO IN connectors for making audio signal connections. When recording from this connector, engage the AUX mode and press the AV/S button so that the "S" indicator lights on the FDP.

(57) **S OUT connector**

A special S-VIDEO output connector (4-pin). Connect to the S-VIDEO input terminal of a 2nd S-VHS video recorder or a television equipped with the same type of terminal, using the provided S-VIDEO cable.

(58) **TEST signal switch**

Set to ON when tuning your TV receiver for the video channel. A test signal in the form of two vertical white bars will be available.

(59) **Attenuator switch (ATT.)**

Set to OFF to receive broadcasts from distant stations. Set to ON to receive broadcasts of high field strength.

(60) **RF converter frequency adjustment screw (CH40 – CH32)**

(See page 12.)

(61) **AC OUTLET**

Connect the power cord of other audio or video equipment (such as an FM tuner) requiring less than 2 amperes of power.

Warning:

The switched AC outlet should not be used for connection of TVs and other apparatus in which unintended switching could result in fire or other hazard.

This outlet is controlled by the AC ONLINE switch ㉖. When the switch is set to OFF, this outlet supplies (220 V∿, 50/60 Hz) regardless of the OPERATE button setting as long as the power cord of the recorder is plugged in.

When the AC ONLINE switch is set to ON this outlet supplies power only when the recorder is on.

(62) **AUDIO IN connectors**

Connect an audio tape recorder or other audio sources for recording sound.

(63) **AUDIO OUT connectors**

Both hi-fi and normal audio signals can be obtained from these connectors. The output can be selected with the AUDIO MONITOR button ㊳ and MIX button ㊲.

(64) **PAUSE terminal**

When using this recorder as the source player, connect to the PAUSE OUT terminal of a second VCR (if so-equipped) for synchronized preroll operation. This terminal can also be used for editing from a JVC VideoMovie camera/recorder using the Master Edit Control system.

(65) **VPS/VPV/VPT connector**

Connect the optional VPS adapter; or connect the VPT (VPV) adapter or VPS/VPT (VPV) adapter for decoding teletext programmes and for teletext timer programming.

(66) **Aerial input connector (ANTENNA IN)**

Connect an aerial to this connector.

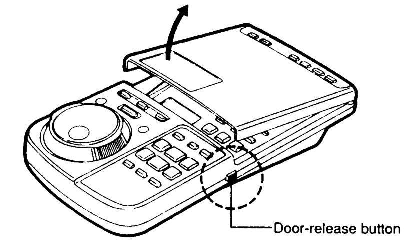
(67) **RF OUT connector**

Connect to the aerial terminal of a TV receiver through the aerial cable (provided).

(68) **Power cord**

Remote Control Unit

Swing open the cover after pressing the button on the side.



TV operation buttons (designated TV models only)

① **OPERATE (TV) button**

Press to turn the TV power on or off.

② **MONITOR (TV/VIDEO) button**

Press to select the TV's operating mode.

TV:	For viewing broadcast programmes or tape programmes via RF OUT connection.
VIDEO:	For viewing programmes via the AV connection.

③ **VOL buttons (– / +)**

Press to decrease or increase the TV's sound volume.

④ **TV PROG. buttons (∨/∧)**

Press to select a desired channel on the TV receiver.

⑤ **Multi-purpose numeric keys**

Channel selection:	See page 17.
Realtime Go-To and Search functions:	See page 34.
Index Search:	See page 35.

⑥ **SOUND MENU button**

Functions same as ㉟.

⑦ **COUNTER MEMORY/REPEAT button**

Functions same as ㊿ as a REPEAT/C. MEMORY button.

⑧ **COUNTER RESET button**

Functions same as ㊾ as a C. RESET button.

⑨ **Teletext buttons**

For teletext operation. (See page 42.)

⑩ **CURSOR (⇤/⇥) buttons**

- Press to specify the direction in the Realtime Search mode. (See page 34.)
- Functions same as (52) as SET buttons.

⑪ **AUDIO MONITOR button**

Functions same as ㊳.

⑫ **OSD (On-Screen Display) button**

- Press to select the language for on-screen messages. (See page 14.)
- Press to cancel instantly the on-screen remote programming display.

⑬ **VPS/CH button**

Functions same as ㊼.

⑭ **MARK button**

Press during playback or recording to put an index code onto the tape. (See page 35.)

⑮ **ERASE button**

Press during playback to erase an index code. (See page 35.)

⑯ **INDEX button**

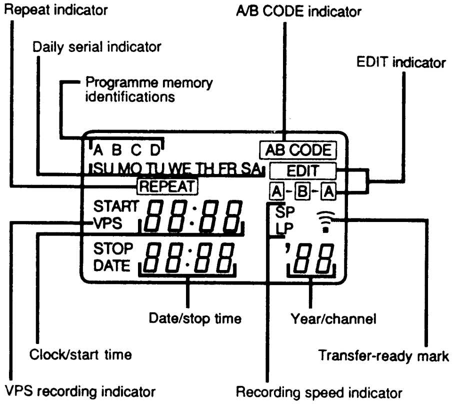
Press to engage the Index Search mode. (See page 35.)

⑰ **INTRO button**

Press to engage the Intro Search mode. (See page 35.)

⑱ **LCD (Liquid Crystal Display) panel**

Refer to this panel when programming the remote control's built-in timer memory.



⑲ **GO-TO button**

Press to engage the Realtime Go-To mode. (See page 34.)

⑳ **DISPLAY button**

Press to switch the display among the realtime tape counter, remaining tape time and date.

Also press to change the display from the Timer Set mode to the Clock mode.

㉑ **VTR CANCEL button**

Press to cancel the programmed data held in the recorder's timer memory in the Timer Set mode.

㉒ **VTR PROG. button**

Press to engage the recorder's Timer Set mode.

㉓ **A/B CODE button**

When using two JVC video decks, press to switch this remote control from the "A" mode to "B" mode, or vice versa, depending on the deck to be controlled. (See pages 8 and 37.)

㉔ **CLOCK ADJ button**

Press to adjust the clock of the remote control.

㉕ **EDIT MODE, STAND-BY and START buttons**

Duet Editing controls for simultaneous control of two JVC decks in editing. (See page 37.)

㉖ **VARIABLE SEARCH buttons**

Press either button to search for a specific segment of the programme at variable speeds. (For details, see page 26.)

㉗ **❚❚ (Pause/Still) button**

㉘ **◀◀/▶▶ (Rewind)(Fast-Forward)(Shuttle Search) buttons**

㉙ **▶ (Play) button**

㉚ **SKIP/BLANK SEARCH button**

- Press while in the Play mode to skip through unwanted tape segments. (See page 24.)
- Press in the Stop mode to engage the Blank Search mode. The tape will automatically stop at the beginning of a non-recorded section. (See page 29.)

㉛ **■ (Stop) button**

㉜ **● (Record) button**

Press together with the ▶ button ㉙ to start recording.

㉝ **OPERATE (VIDEO) button**

Press to turn the recorder power ON or OFF.

Keep this button pressed for 2 seconds when turning the power off to engage the Child Lock mode. (See page 9.)

㉞ **SP/ LP button**

Functions same as ㊶.

㉟ **EJECT button**

Press while in the Stop mode to eject the cassette.

㊱ **MEMORY CANCEL button**

Press to cancel the programmed data in the remote control's timer memory.

㊲ **TIMER button**

Functions same as (54).

㊳ **TRANS/SUMMER TIME ADJ button**

This is a dual-function button.

- as a TRANS button — press to transfer the data held in the remote control's timer memory to the recorder.
- as a SUMMER TIME ADJ button — press to adjust the remote control's clock to the summer time setting. (See page 16.)

㊴ ***MEMORY PROG. button***
Press to programme the remote control's timer memory.

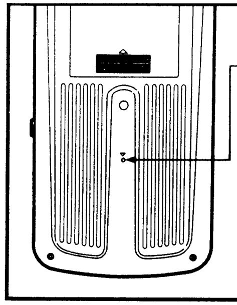
㊵ **CH/SET·SELECT button and indicator**
Press this button first when you are going to use the JOG/SHUTTLE controls for purpose other than search. The indicator will light, and will automatically turn off after about one minute if the JOG/SHUTTLE controls are left unused.

㊶ **JOG/SHUTTLE button and indicator**
Press this button first when you are going to use the JOG/SHUTTLE controls for search. The indicator will light, and will automatically turn off after about one minute if the JOG/SHUTTLE controls are left unused.

㊷ **SHUTTLE ring (outer control)**
Functions same as ❾.

㊸ **JOG dial (inner control)**
Functions same as ❽.

Remote Control Unit's RESET button



RESET button
Insert a pointed object into the hole to press the initialize button inside, when required. The memory for the LCD display will be cleared. Normally do not touch this button.

Rear of the remote control

Note:
When the optional VPT (VPV) adapter is connected,four coloured keys and several buttons have additional teletext functions, as indicated by their additional labels.

Remote Control Unit

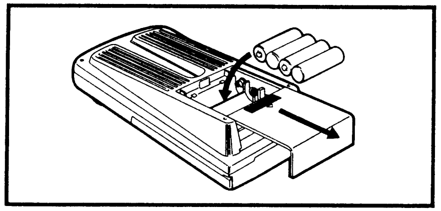
A/B code switching
When you own two JVC video decks, this remote control can operate both decks separately; they do not respond simultaneously to the remote control's signal, if they are set to respond to different codes. Initially this recorder is set in the "A" mode.
To change the mode, carefully follow the instructions below:

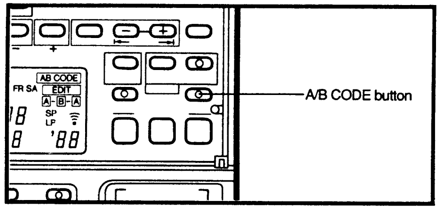
(1) Unplug the power cord of the recorder from the AC outlet.
(2) Press the A/B CODE select button to engage the "B" mode; "B CODE" will appear on the LCD.
(3) Plug the power cord of the recorder into the AC outlet.
(4) Turn on the power of the recorder using the remote control's OPERATE (VIDEO) button ㉝.

The recorder "memorizes" this B code and will respond only to the B code signals. Set the other deck to respond to the A code signals in the same procedure.

Note:
Do not operate other remote controls after you have plugged the recorder into the AC outlet and before you press the OPERATE (VIDEO) button of this remote control.

CAUTION:
Some televisions may malfunction in response to this remote control when used in the "B" mode. If this should happen, switch the mode back to "A".




AB CODE
EDIT
FR SA
A-B-A
SP
LP
'88
A/B CODE button

Operating distance for remote control unit
- The maximum operating distance is about 8 m.

Installing the batteries
- Insert four "R6"-size batteries (provided) into the battery compartment on the rear of the remote control unit, observing correct polarity.

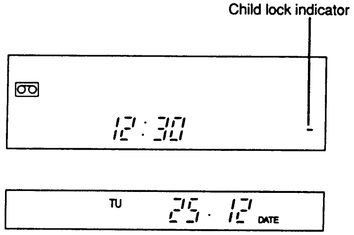
CAUTION:
Do not install a combination of old and new batteries.
(Never install a combination of an alkaline battery and a manganese battery.)

CHILD LOCK FUNCTION

The Child Lock function is for preventing accidental operation by young children, or other unwanted operation, such as playing back or recording over an important cassette you may have left inserted in the recorder. By engaging the Child Lock mode, the operation buttons on the recorder become ineffective, unless the remote control is used.

To engage the Child Lock mode

- Press the remote control's OPERATE (VIDEO) button ㉝ to turn the recorder power off and keep this button pressed for about 2 seconds after the power LED indicator has gone off.
- The Child Lock indicator (–) will appear in the channel display section on the FDP to show that the recorder is now in the Child Lock mode.

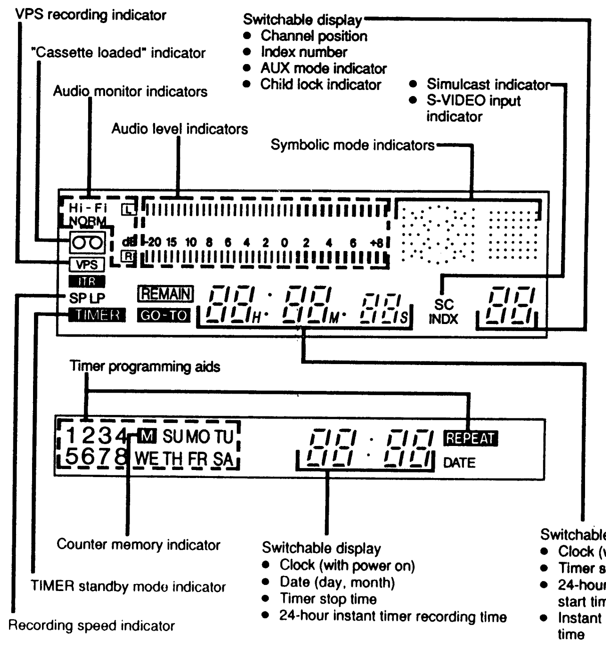

Child lock indicator
12:30
TU
25.12
DATE

To disengage the Child Lock mode

- When the remote control's OPERATE (VIDEO) button is pressed to turn the recorder power on, this disengages the Child Lock mode. The recorder will turn on and the corresponding display will appear with the channel number appearing where the child lock indicator appeared before.
- Pressing the TIMER button during timer recording also disengages the Child Lock mode.

Notes:
- While in the Child Lock mode, the recorder can receive timer programmed data from the remote control.
- Timer recording is possible also, even while in the Child Lock mode. After timer recording has been performed, the Child Lock mode remains in effect.
- Even after automatic cassette ejection at tape end, following timer recording, the Child Lock mode remains in effect.
- It is possible to insert a cassette while in the Child Lock mode. After inserting a cassette, the Child Lock mode remains in effect.

DISPLAY PANEL INDICATIONS


VPS recording indicator
"Cassette loaded" indicator
Audio monitor indicators
Audio level indicators
Switchable display
• Channel position
• Index number
• AUX mode indicator
• Child lock indicator
• Simulcast indicator
• S-VIDEO input indicator
Symbolic mode indicators
Hi-Fi
NORM
L
R
dB -20 15 10 8 6 4 2 0 2 4 6 +8
VPS
ITR
SP LP
TIMER
REMAIN
GO-TO
88H·88M·88S
SC
INDX
88
Timer programming aids
1234 M SU MO TU
5678 WE TH FR SA
88 · 88
REPEAT
DATE
Counter memory indicator
TIMER standby mode indicator
Recording speed indicator
Switchable display
• Clock (with power on)
• Date (day, month)
• Timer stop time
• 24-hour instant timer recording time

Switchable display
- Clock (with power off)
- Timer start time
- 24-hour Instant timer start time
- Instant timer recording time
- Realtime tape counter
- Go-To "time" entry
- Remaining tape time
- Real channel
- Date (day, month, year)

Symbolic mode indicators

PLAY:	▷
FF:	⏩
REW:	⏪
FF VARIABLE SHUTTLE SEARCH:	▷ ⏩
REW VARIABLE SHUTTLE SEARCH:	◁ ⏪
STILL: FORWARD SLOW:	▷ ⏸
STILL: REVERSE SLOW:	◁ ⏸
RECORD:	○
RECORD PAUSE:	○ ⏸
INSERT EDITING:	⊳
AUDIO DUBBING:	⊙

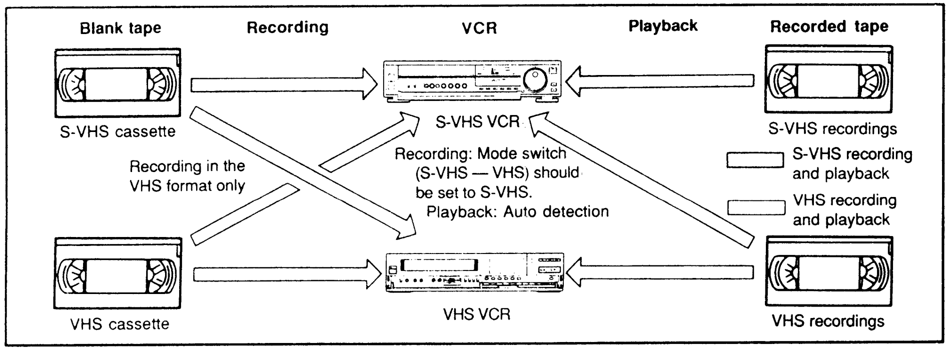
INFORMATION ON THE S-VHS SYSTEM

S-VHS vs. VHS

- VHS is the world's most popular video format. If you owned a VCR before this recorder, most likely it was a VHS machine.
- S-VHS is a new video sub-format based on VHS. It offers superior picture quality with a horizontal resolution of more than 400 lines.

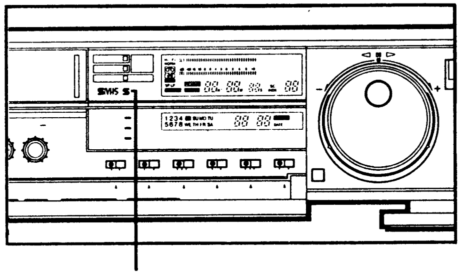
- This recorder is equipped for recording and playback in both the S-VHS and VHS modes. Therefore, you can still play back your VHS software programmes and previously recorded family recordings.
- You can switch to the world of S-VHS for your new recordings to enjoy breath-taking picture quality. Or to exchange recordings with someone whose VCR is not S-VHS, simply record in the VHS mode, whether with a regular VHS cassette or an S-VHS cassette.

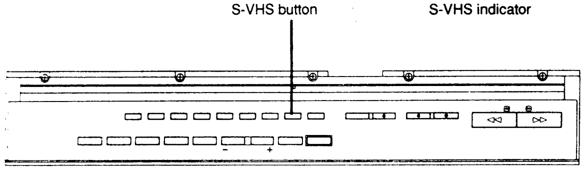
COMPATIBILITY BETWEEN S-VHS AND VHS


Blank tape
Recording
VCR
Playback
Recorded tape
S-VHS cassette
S-VHS VCR
S-VHS recordings
Recording in the VHS format only
Recording: Mode switch (S-VHS — VHS) should be set to S-VHS.
Playback: Auto detection
S-VHS recording and playback
VHS recording and playback
VHS cassette
VHS VCR
VHS recordings

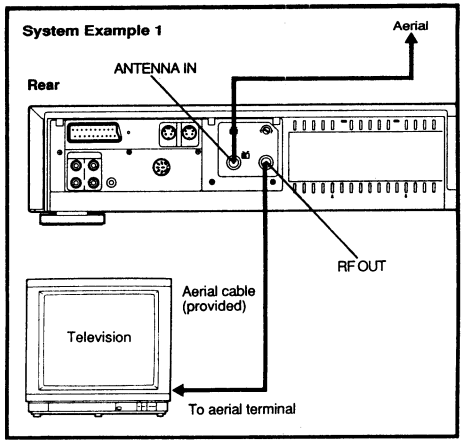
S-VHS RECORDING AND PLAYBACK

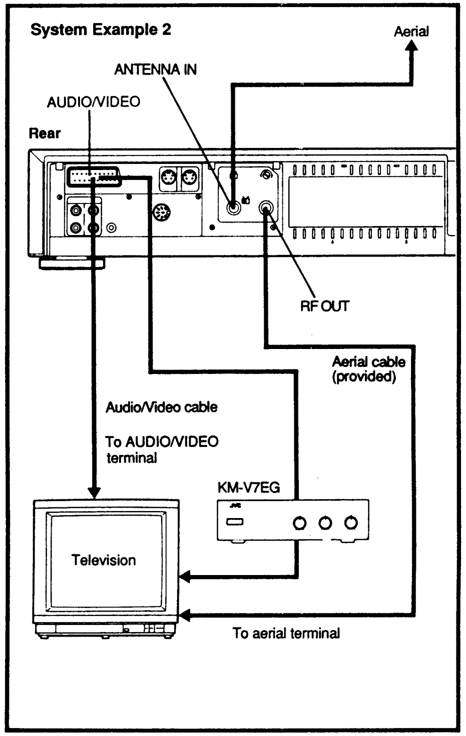
- To record in the S-VHS mode, insert an S-VHS cassette. The "S-VHS" indicator will light, and you are ready to record in the S-VHS mode.
- To record in the VHS mode with an S-VHS cassette, press the S-VHS button to extinguish the "S-VHS" indicator.
- During playback, the S-VHS recordings are automatically detected and played back in the S-VHS mode with the "S-VHS" indicator lit.




S-VHS button
S-VHS indicator

CONNECTIONS


System Example 1
Aerial
ANTENNA IN
Rear
RF OUT
Aerial cable (provided)
Television
To aerial terminal


System Example 2
Aerial
ANTENNA IN
AUDIO/VIDEO
Rear
RF OUT
Aerial cable (provided)
Audio/Video cable
To AUDIO/VIDEO terminal
KM-V7EG
Television
To aerial terminal

AERIAL AND RF CONNECTION

1. Remove the aerial cable from the television and reconnect it to the recorder's ANTENNA IN connector. The recorder is then ready to record off-air programmes.
2. Connect the recorder's RF OUT connector to the television's aerial terminal using the provided aerial cable. The television is then ready to receive broadcast programmes. When you are not using the recorder, the TV signals are fed to the television via this terminal.

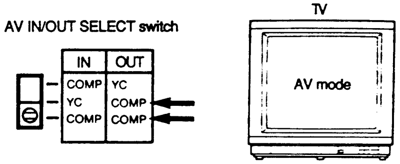
- If your television is equipped with the aerial terminal only, you view tape programmes also via this terminal. In this case, set the television to UHF channel 36 (or a UHF channel adjusted as the video channel). See "VIDEO CHANNEL SETTING" on page 12.
- When a video tape is played back through the RF OUT connector, the audio is reproduced always as monaural; with hi-fi stereo tapes, both channels are mixed.

SCART CONNECTION

- If your television is equipped with a 21-pin SCART connector, connect the recorder's AUDIO/VIDEO socket to the television's SCART connector.
- The AUDIO/VIDEO socket of this recorder delivers a separate Y/C signal (which consists of luminance (Y) and chrominance (C) signals), or a composite video signal (regular video signal in which luminance and chrominance signals are mixed), depending on the setting of the AV IN/OUT SELECT switch ⓭. (When the AUDIO/VIDEO socket is used to connect to a television, the AV IN/OUT SELECT switch functions as an AV OUT SELECT switch.) Check the type of your television's SCART connector — whether it's regular AV (composite video), RGB-compatible, or Y/C-compatible, and set the switch ⓭ as required.
- The AUDIO/VIDEO socket of this recorder also delivers stereo audio signals. If your television is a stereo television, it is possible to play stereo tapes through the television's speakers.

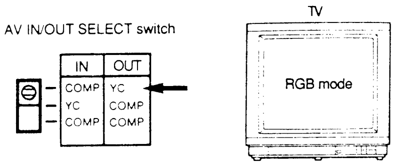
(a) With AV televisions

Since their SCART connector accepts only the composite video signal, set the AV IN/OUT SELECT switch ● to "COMP" (either the middle or lower position). And set the television to the AV mode.


AV IN/OUT SELECT switch
TV
IN
OUT
COMP
YC
YC
COMP
COMP
COMP
AV mode

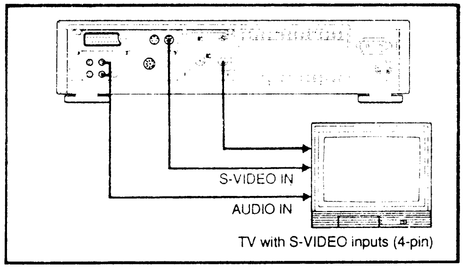
(b) *With RGB-compatible televisions*

By connecting the optional KM-V7EG RGB signal converter between the recorder's AUDIO/VIDEO socket and the television's SCART connector, the separate Y/C signal is converted into an RGB signal for reproduction of high-quality S-VHS signals. With this connection, set the AV IN/OUT SELECT switch ⑮ to "Y/C" (the upper position) and set the television to the RGB mode.



4-PIN S CONNECTION

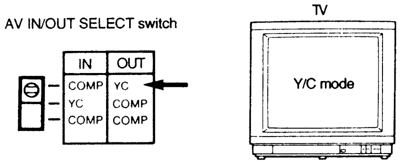
- If your television is equipped with a 4-pin S-VIDEO IN connector, connect the S OUT connector (57) of the recorder to the S-VIDEO IN connector of the television using the provided S-Video cable, and connect the AUDIO OUT connectors of the recorder to the AUDIO IN connectors of the television.



TV with S-VIDEO inputs (4-pin)

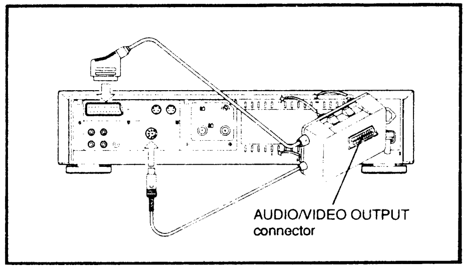
(c) With Y/C-compatible televisions

Simply connect the recorder's AUDIO/VIDEO socket to the television's SCART connector. To reproduce high-quality S-VHS pictures, set the AV IN/OUT SELECT switch ⑮ to "Y/C" and set the television to the Y/C mode.



Note:
For switching the television's input mode, refer to the instruction manual of your television.

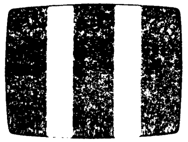
If the optional VPT (VPV) adapter is connected to the AUDIO/VIDEO socket, the adapter's SCART connector functions as the AUDIO/VIDEO socket (output only) for connection to a television. Set the AV IN/OUT SELECT switch ⑮ according to the type of television in the same way as when not using the adapter.



Note:
Do not connect the KM-V7EG RGB adapter to the VPT (VPV) adapter's SCART connector.

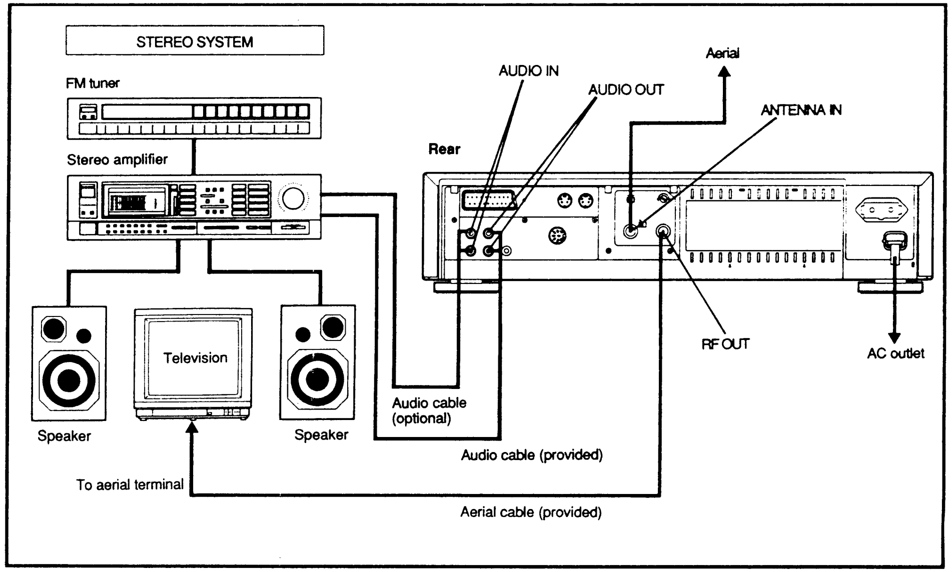
VIDEO CHANNEL SETTING

1. Press the OPERATE button ① to turn the power on. Turn on the TV receiver.
2. Set the TEST switch (58) to ON.
3. Adjust your TV receiver in the vicinity of UHF channel 36 until you bring in the two white signal bars on the screen as illustrated. This is your VIDEO CHANNEL.
4. Reset the TEST switch to OFF.



Notes:
- If some interference noise is seen on the screen because of broadcasts on neighbouring channels or if your preset broadcasts should be affected in picture quality, it is necessary to shift the RF converter output frequency from that of channel 36. Consult your JVC dealer for making this adjustment.
- Video channel setting is also possible using a prerecorded VHS video cassette. Play back the tape and tune the TV receiver to obtain clear pictures and sound while monitoring the playback picture on the TV screen.
- If your TV receiver is not provided with an AFC circuit, perform fine tuning of the TV receiver when you are actually viewing video cassettes.

TO A STEREO SYSTEM



Procedure

1. Connect the AUDIO IN L and R connectors of the recorder to the recording output terminals of the amplifier. (Exactly as one hooks up an audio cassette deck).
2. Connect the AUDIO OUT L and R connectors of the recorder to the AUX IN or TAPE MONITOR terminals of the amplifier.

CAUTION:
- This recorder has a dynamic range of more than 90 dB with regards to its hi-fi audio capability. It is recommended that you check the maximum level if you are going to listen to the hi-fi audio signals through a stereo amplifier. A sudden surge in speaker input may cause speaker damage.
- Some speakers and televisions are specially shielded to prevent television interference. If both are of the non-shielded type, do not place the speakers adjacent to the TV set, otherwise the video playback picture will not be normal because of mutual interference.

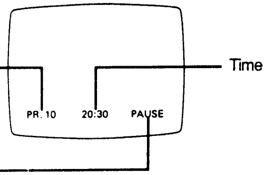
Notes:
- Observe L and R when connecting the audio input and output connectors of the recorder to a stereo amplifier.
- If stereo or bilingual TV broadcasts are receivable in your area, this recorder can record them independently of the TV set and play them back through the connected audio system.
- When listening to sound from the connected stereo system, turn down completely the sound volume of the TV receiver.
- Listening to stereophonic sound is also possible using stereo headphones connected to the front panel PHONES jack ⑱.
- With this setup, you can enjoy prerecorded Hi-Fi VHS video tapes in hi-fi stereo while viewing them on a regular TV receiver, and also you can record FM simulcast television programmes with hi-fi audio accompaniment. See page 28.
- If you want to timer-control the recording of FM simulcast programmes, connect the tuner's power cord to the recorder's AC outlet. Set the AC ONLINE switch ㉖ to ON, and both the tuner and the recorder will be switched on at a time preprogrammed by the recorder. Timer-controlled recording of FM simulcast programmes is not possible with the type of tuners which reset the channel each time the power is switched off.

ON-SCREEN MODE DISPLAY

Four-language on-screen display is available for timer programming (see page 31) and mode check. To select the language, press the remote control's OSD button for longer than 2 seconds while a mode check display is on the screen. The screen will display "ENGLISH", "DEUTSCH", "FRANCAIS" and "ITALIANO" in that order where the operation mode is otherwise displayed. Simply release the OSD button at the language you want.

Channel number or AUX mode

English	German	French	Italian
PR. AU	PR. AU	CH. AU	PR. AU



Operation mode

	English	German	French	Italian
• Play mode	PLAY	LAUF	LECT	RIPRO
• Record mode	REC	AUFN	ENR	REG
• Fast forward mode	FF	VL	AV	AVANZ
• Rewind mode	REW	RL	RET	RIAVV
• Pause mode	PAUSE	PAUSE	PAUSE	PAUSA

Automatic indication

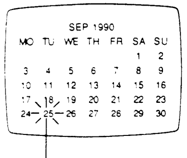
- Channel number is displayed each time a different channel (or AUX mode) is selected.
- Time is displayed whenever the channel or operation mode is displayed.
- Mode is displayed for 5 seconds each time the operation mode is changed to Record, Play, Fast Forward or Rewind from any other mode. The PAUSE indication remains on for as long as the Record-Pause mode is engaged.

Manual recall

- For checking of the channel, time, or mode, press the OSD button. The corresponding indication will be available on the screen for 5 seconds.

On-screen calendar display

1. Press DISPLAY button ⑳ on the remote control to obtain the DATE indication on the FDP.
2. Press OSD button ⑫.
   - The on-screen display will change to the Calendar mode and the current day indication will blink.
3. To call up another month, first press the CH/SET·SELECT button and turn the SHUTTLE ring clockwise; the month indication starts blinking. Then select the desired month by turning the JOG dial.
4. To call up another year, use the JOG/SHUTTLE controls in the same way as for step 3.
   - Year indication is available from 1990 to 2089.



Current day

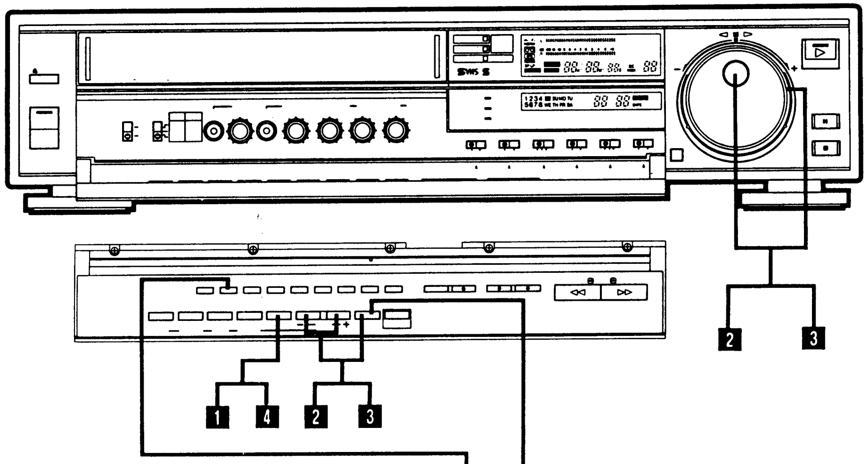
Notes:

- Four-language on-screen display is also available for the Calendar mode. However, it is not possible to change the language after the Calendar mode has been engaged. Press the OSD button while one of the mode check displays is on the screen as described above.
- To disengage the Calendar mode, press the OSD button again.
- The Calendar mode cannot be engaged while in the Record mode or Index Search mode.
- While in the Calendar mode, channel selection can be made only with the numeric keys.

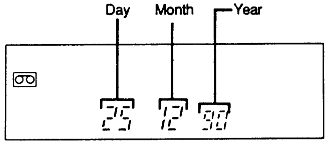
CLOCK SETTING

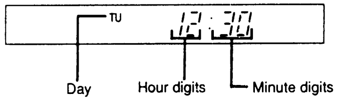
Setting the built-in clock

Plug the recorder into an AC outlet. The display shows a blinking 0:00.



1. Press the C. ADJ. button until the display shows the Clock Set mode with the hour indication blinking.
2. Set the hour and minute in that order by using the JOG/SHUTTLE controls, or the SELECT and SET buttons alternately.
   - The blinking position is ready for entry.
   - Turn JOG or press SET until the correct indication appears in each position.
3. Set the day, month and year in the same way.
   - In year setting, set only the last two digits of the year.
4. Press the C. ADJ. button.
   - Press it at the exact instant of the time signal, and the clock will be set accurately to the present time.
   - The day-of-the-week indication will be displayed automatically.





Notes:

- Clock setting is not possible in the timer recording standby mode. First check to see that the TIMER indicator on the FDP is not lit.
- Enter the data within 10 seconds after pressing the C. ADJ. button.

SUMMER TIME ADJUST

This convenient feature is for quickly making the annual clock adjustment to the "summer time" (daylight saving time) setting, and back to regular time later.

1. Simply press and quickly release the SUMMER TIME ADJ. button in the Clock Set mode to set the clock forward by one hour.
2. Later in the year, to switch back to regular time, simply hold the SUMMER TIME ADJ. button pressed for 2 seconds to set the clock back by an hour.

DISPLAY OFF

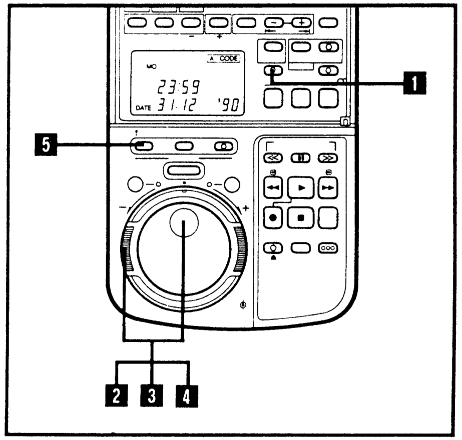
Press the DISPLAY OFF button to make indications on the front panel disappear when they are not required; the FDP will show "– : –". Press again to make the clock display reappear.

Power failure indicator

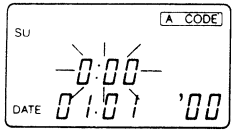
The blinking 0:00 (initial condition of the display) is also a power failure indicator, showing that there has been a power failure exceeding about 60 minutes. Readjusting the time restores the normal condition of the clock display.

Setting the LCD clock of the remote control unit

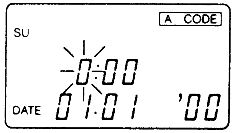
The LCD clock is independent of the recorder's clock.
The recorder's clock can be adjusted from the remote control unit if its transfer function is used.



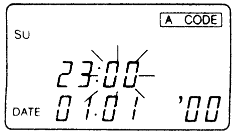
Insert four "R6"-size batteries (provided) into the remote control. The LCD shows the following with "0:00" blinking.



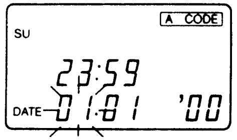
1 Press the CLOCK ADJ. button.
- The hour indication will blink.



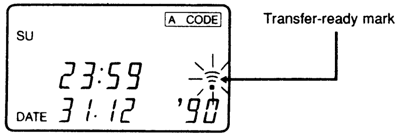
2 Turn the JOG dial to set the current hour, then turn the SHUTTLE ring clockwise.
- The minute indication will blink.



3 Turn the JOG dial to set the current minute, then turn the SHUTTLE ring clockwise.
- The day indication will blink.



4 Set the day, month and year in succession in the same way.
- In year setting, set only the last two digits of the year.
- After setting the year and turning the SHUTTLE ring clockwise, the transfer-ready mark will appear and blink.



5 Press the TRANS button at the exact instant of the time signal.
- The day-of-the-week indication will be displayed automatically.
- The clock of the remote control will be set accurately to the second and, at the same time the set data will be transferred to the clock of the recorder.
- When it is not necessary to transfer the clock data to the recorder, press the CLOCK ADJ. button instead of the TRANS button to set the remote control's clock.
- If the transfer-ready mark disappears before transmission, press the CLOCK ADJ. button to make it reappear, then press the TRANS button while the transfer-ready mark is blinking; otherwise, the TRANS button will function as a summer time adjust button.
- If the clock has already been set, the transfer-ready mark starts blinking when the CLOCK ADJ. button is pressed.
- To transfer the data to the recorder's clock, simply press the TRANS button.
- To readjust the clock, press the CLOCK ADJ. button and then turn the SHUTTLE ring either direction so that the position which requires correction blinks.

SUMMER TIME ADJUST

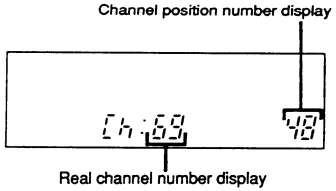
For quickly making the annual clock adjustment to the "summer time" (daylight saving time) setting, and back to regular time later, use the SUMMER TIME ADJ button ㊳.

1. Simply press and quickly release the SUMMER TIME ADJ button in the Clock mode to set the clock forward by one hour.
2. Later in the year, to switch back to regular time, simply hold the SUMMER TIME ADJ button pressed for more than 2 seconds to set the clock back by an hour.

Note:
- For summer time adjustment, make sure that the transfer-ready mark is not on the LCD.

OPERATING THE BUILT-IN TUNER

This recorder incorporates an advanced frequency synthesized tuner which is pretuned to 112 channels to cover VHF, UHF and CATV broadcasts. Channel indication is given in two different ways: real channel numbers and channel position numbers. Real channel number indication is available by pressing the CHANNEL SET button ⓱ or VPS/CH button ⑬, or during search by pressing the SEARCH button ㊽, while channel position number indication is always available in the channel display.



Correspondence between 112 pretuned TV stations and the recorder's real channel indications

DISPLAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20
Ch	—	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11 (H1)	E12 (H2)	A	B	C	D	E	F	G	H
CC	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20
	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	U1	U2	U3	U4	U5	U6	U7	U8	U9	U10
	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
DISPLAY	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
Ch	E21	E22	E23	E24	E25	E26	E27	E28	E29	E30	E31	E32	E33	E34	E35	E36	E37	E38	E39	E40
CC	S21	S22	S23	S24	S25	S26	S27	S28	S29	S30	S31	S32	S33	S34	S35	S36	S37	S38	S39	S40
DISPLAY	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
Ch	E41	E42	E43	E44	E45	E46	E47	E48	E49	E50	E51	E52	E53	E54	E55	E56	E57	E58	E59	E60
CC	S41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
DISPLAY	**61**	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**			**75**	**76**	**77**	**78**	**79**				
Ch	E61	E62	E63	E64	E65	E66	E67	E68	E69			—	—	—						
CC	—	—	—	—	—	—	—	—	—			X	Y	Z	—	—				

Stored channels

A total of 112 channels are receivable. Of them, up to 48 can be stored for easy channel selection. Prior to shipment, some channels are stored.

It is possible to store more channels or skip some channels if there are no broadcasts on those channels in your area. It is possible to change the stored channels to correspond to your preferred channel allocation. Skipped channels can be restored whenever necessary.

- Channel memories are permanent; the programmed channel allocation will not be erased even if the recorder is unplugged from the AC outlet.

Channel selection

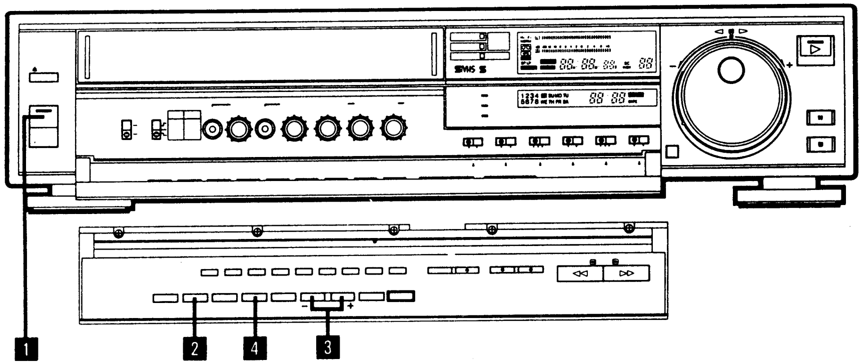
To select a channel for recording, normally use the JOG dial ❻ ㊸ (first, press the CH/SET·SELECT button when you use the remote control) or 10 numeric keys ⑤. You can choose any channel from among the stored ones by calling up the corresponding channel position number.

- Turn the JOG dial counterclockwise to scan to a channel in the direction of decreasing numbers; clockwise in the direction of increasing numbers.
- An invalid number larger than 48 will be rejected.

If you want to select a channel other than those stored, engage the Real Channel mode and call up a channel, while referring to the real channel number display.

With recorder's controls:
- Simply press the SEARCH button ㊽.

With remote control:
- Press the VPS/CH button ⑬ to engage the Real Channel mode and call up a channel by using the 10 numeric keys. For details, refer to the next page.



Storing channels

TV receiver

Turn the TV receiver to ON.

- Adjust it to your video channel or to the AV mode (depending on the connection).

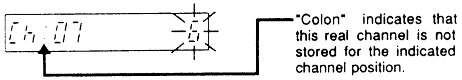
A. Automatic Setting

1 Turn the power on.

- The display will change from the Date mode to the Counter mode.

2 Press the SEARCH button.

- The display will change to the Real Channel mode and automatic scanning will take place for "Ch" channels, then for "CC" channels.



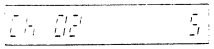
"Colon" indicates that this real channel is not stored for the indicated channel position.

- Reverse search will be engaged if the SEARCH button is kept depressed.
- When a broadcast is detected, scanning stops automatically and the displayed channel position number will blink.

3 Select a channel position into which you wish to store that station by using the CHANNEL buttons (52) while the channel position number is blinking.

4 After confirming the real channel number and channel position number, press the STORE button.

- The Channel position number stops blinking.
- "Colon" will disappear and the selected station has been stored.



VHF channel 2 is stored for channel position 5.

Cable channel 75 is stored for channel position 6.

5 To continue automatic setting, repeat steps **2** through **4**.

B. Manual Setting from remote control unit

(1) Press the VPS/CH button ⑬.
- The display will change to the Real Channel mode.

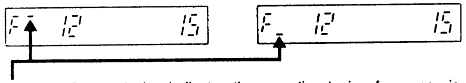
(2) Press VPS/CH until the real channel number starts blinking.
- Pressing the VPS/CH button will alternate the Real Channel mode between Ch and CC.
- Blinking will stop in 10 seconds.

(3) Enter the number of a real channel to be preset.
- The channel position number will start blinking.

(4) Select a channel position into which the selected real channel is to be stored, using the 10-digit keypad.
- Depress the numeric key for the second digit continuously until blinking stops. This enables the entered number to be stored.
- The display will return to the clock mode by simply keying in the channel number to be viewed.

• Fine Tuning

For fine tuning, press the SELECT button (53) in step 3 (both in automatic and manual setting) and use the FINE "+" or "_" button (52); "+" to fine-tune in the direction of increasing frequencies, and "–" to fine-tune in the direction of decreasing frequencies.



Upper or lower "-" sign indicates the operating tuning frequency is above or below the standard broadcast frequency.
Center "-" sign will appear when it corresponds to the standard.

Skipping the stored channels

1. Call up the channel position number that you wish to skip by using the JOG dial ❽or 10 numeric keys.
2. Press the CHANNEL SET button ㊼.
3. Press the SKIP button ㊾.
   - "Colon" will appear to indicate that the displayed real channel is not stored.
   - The skipped channel number will not appear on the channel display during up/down scan tuning.
   - To restore the skipped channel, press the STORE button after step 3.

Note:

If no command is given after each step of the setting operation, the Real Channel mode will be automatically cancelled in 10 seconds.

INFORMATION ON THE AUDIO SYSTEM

Hi-Fi and normal audio

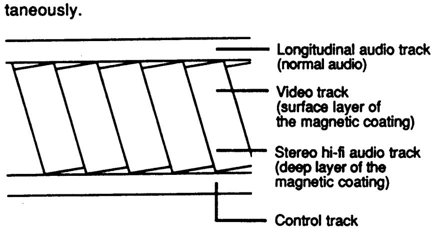
This recorder has two audio systems: Hi-Fi audio and normal audio. Hi-fi audio signals (2-channel) are recorded deep into the tape's magnetic coating of the video track section, while normal audio signals are recorded on the usual longitudinal track.

CAUTION:

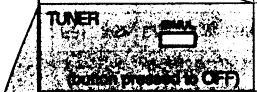
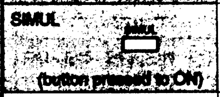
- The hi-fi soundtrack recorded with this recorder cannot be reproduced with video equipment other than Hi-Fi VHS.
- The normal soundtrack is compatible with any VHS equipment.

Tape pattern recorded with this recorder

The Hi-Fi and normal soundtracks are recorded simultaneously.


Longitudinal audio track (normal audio)
Video track (surface layer of the magnetic coating)
Stereo hi-fi audio track (deep layer of the magnetic coating)
Control track

Recording options according to the selected input mode

Track / Input mode	Video track	Normal audio track (mono)	Hi-fi audio track (2-channel)
TUNER  **(button pressed to OFF)**	TV picture (from built-in tuner)	**TV sound (from built-in tuner)**	**TV sound (from built-in tuner)**
SIMUL  **(button pressed to ON)**	TV picture (from built-in tuner)	**TV sound (from built-in tuner)**	Audio signal from AUDIO IN
AUX AU Channel display section	Video signal from AUDIO/VIDEO	Audio signal from AUDIO/VIDEO (Mixing with microphone input is possible.)	

Notes:

- To engage the AUX mode, turn the JOG dial (first, press the CH/SET·SELECT button when you use the remote control).
- Microphone input will be mixed with the audio signals on the hi-fi audio track only when the AUX mode is selected.
- You can record audio only (without recording any video signal) in either the SP or LP mode. In the LP mode you can enjoy up to 8 hours of hi-fi stereo recording with a single cassette (E-240).

Recording options according to the type of broadcasts and the setting of the TV SOUND switch

Type of broadcast	TV SOUND switch position / Audio Track	Normal audio track (mono)	Hi-fi audio track (2-channel) L	R
Regular (monaural audio)	Either position	Mono	Mono	
Stereo broadcast	Either position	L + R mixed	Stereo	
Bilingual broadcast	MAIN	Main soundtrack (local language)	Main soundtrack (local language)	Sub soundtrack (foreign language)
	SUB	Sub soundtrack (foreign language)		

Hi-Fi audio recording level adjustment

While recording onto the normal audio track is controlled by the built-in Automatic Level Control circuit, hi-fi audio recording has two control options: manual and automatic.

Hi-Fi AUDIO REC LEVEL BALANCE control knob

Turn this control knob to adjust the balance between L and R channels relative to each other, while adjusting the Hi-Fi audio recording level; counterclockwise to boost the Hi-Fi audio left-channel recording level, clockwise to boost the right-channel.

Hi-Fi AUDIO REC LEVEL control knob

Turn this control knob, clockwise to increase the recording level and counterclockwise to decrease the recording level, for manual adjustement of the Hi-Fi audio recording level.

ALC switch

Setting this switch to ON activates the built-in audio limiter circuit for both channels so that the recording level is automatically controlled. For manual adjustment, set this switch to OFF. (The recording level for normal audio is always controlled automatically regardless of the setting of this switch.)

Audio level indicators

For manual control of the recording level, first set the relevant switch and button as follows:

ALC ㉗ → OFF
LEVEL IND. ㉘ → ON
AUDIO MONITOR ㊳→ Hi-Fi L and R (Hi-Fi Stereo)

Then turn the Hi-Fi AUDIO REC LEVEL control knob referring to these indicators. When indicators up to or near 0 dB light for the loudest signal being applied, the recording level is optimum. (The level at which only one red indicator lights from time to time may be most appropriate.)

During playback, these indicators show the level of audio signals recorded on the tape.

Notes:

- With the AUDIO MONITOR and MIX buttons pressed so either Hi-Fi L or R or NORM indicator lights on the FDP, the recording level of hi-fi audio signals cannot be correctly indicated. Select both Hi-Fi L and R indicators when adjusting the recording level.
- The normal audio signal level is also displayed by these indicators, but cannot be adjusted.

Dual-audio playback flexibility

MIX button

Operates in conjunction with the AUDIO MONITOR button to select soundtracks for listening.

- When the power is turned on, both hi-fi channels can be listened to. Press this button once to listen to only the normal soundtrack (the NORM indicator lights).
- Press this button again to listen to a mixture of hi-fi stereo (Hi-Fi L and/or Hi-Fi R), and normal soundtracks, by selecting the combination with the AUDIO MONITOR button.

Notes:

- This button functions during recording as well, although it has no effect on the recorded signal.
- When playing back a tape containing the same soundtrack on both hi-fi and normal audio tracks, a slight time lag is sensed between the two soundtracks, probably with some distortion when listening in the Mix mode.

LEVEL IND. switch and TRACKING buttons

The right-channel audio level indicator also functions as a tracking meter during playback. If noise or breaks are sensed in the reproduced sound from the hi-fi audio track or noise bars are visible on the screen, perform manual tracking adjustment by using the TRACKING buttons (see page 23) while referring to the meter. For this purpose, set this switch to TRACK and press the buttons so that the greatest number of elements of the right-channel indicator light. When this switch is set to OFF, the indicators do not light, regardless of whether during recording or playback.

Note:

When playing back a tape with no recording on the hi-fi audio track, the level indicator does not light when the LEVEL IND. switch is set to TRACK.

AUDIO MONITOR button

Selects the hi-fi audio channel (left, right or both) for listening. Use this button together with the MIX button referring to the four indicators (Hi-Fi, L, R and NORM).

- When the power is turned on, the Hi-Fi L and R indicators light and both hi-fi channels can be listened to. Press this button and only the Hi-Fi L indicator lights to listen to only the left hi-fi channel sound.
- Press this button again and only the Hi-Fi R indicator lights to listen to only the right hi-fi channel sound.

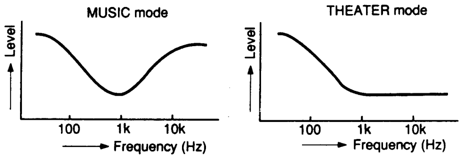
Notes:

- This button functions during recording as well, although it has no effect on the recorded signal.
- With the MIX button pressed for the NORM setting, pressing the AUDIO MONITOR button has no effect.

SOUND MENU SYSTEM

This recorder incorporates a sound processor with four modes — STEREO WIDE MUSIC, STEREO WIDE THEATER, SIMULATED STEREO MUSIC, and SIMULATED STEREO THEATER — selectable via a Sound Menu system. To provide the best possible performance with music programmes, the two MUSIC modes boost both lows and highs, while in the two THEATER modes, only lows are boosted to better reproduce movies soundtracks. In the SIMULATED STEREO modes, monaural soundtracks become simulated stereo, while in the STEREO WIDE modes stereo soundtracks become stereowide. Select the desired mode according to your preference.

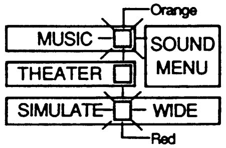
Frequency response



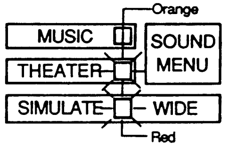
Operation

- Press the SOUND MENU button either on the recorder ㉟ or the remote control unit ⑥ until you get the desired mode.
- The LED indicators on the recorder show the selected mode.

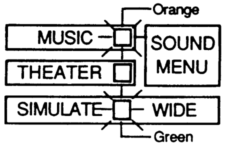
LED INDICATORS



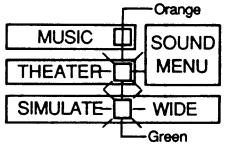
STEREO WIDE MUSIC



STEREO WIDE THEATER



SIMULATED STEREO MUSIC



SIMULATED STEREO THEATER

LOADING AND UNLOADING A CASSETTE

Motorized Loading System

- The cassette can be loaded even when the power has not been turned on. Inserting a cassette into the loading slot turns the power on automatically.
- The cassette can be unloaded even when the power has been turned off. If a cassette is inside, pressing the EJECT button turns the power on automatically and, after ejection of the cassette, shuts it off automatically.

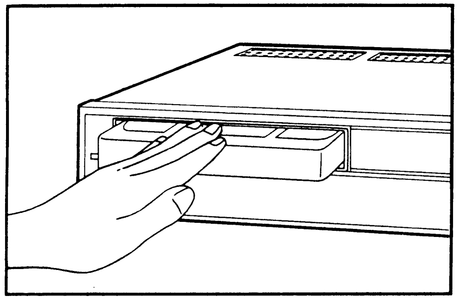
Auto-Play System

- Inserting a cassette, with its safety tab removed, turns the recorder on and playback of the cassette begins automatically.

LOADING

Insert a cassette as illustrated with its labelled side facing you.

- With a cassette inserted, the"▭" indicator appears on the FDP.
- The counter resets automatically when a cassette is inserted.



Notes:

- Be sure to insert the cassette firmly into the slot; otherwise it will be automatically ejected.
- The automatic loading mechanism will operate only when the cassette is inserted correctly.

UNLOADING

Press the EJECT button ❷ in the Stop mode.

Caution

- If unloading of a cassette is not possible, check to see whether the TIMER indicator is lit. If so, press the TIMER button so the TIMER indicator extinguishes.
- Do not attempt to pull out the cassette once automatic loading has started.

WARNING

- Do not insert fingers or any foreign object beyond the door flap of the cassette loading slot, as this could lead to injury or damage to the mechanism. Show special caution with children.

USABLE CASSETTES AND THEIR RECORDING TIME

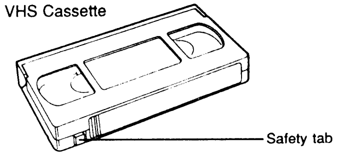
Both regular VHS and S-VHS cassettes can be used with this video recorder for recording. However, S-VHS recordings cannot be made with regular VHS cassettes.

	Type of Cassette	Recording/Playback Time	
		SP (Standard Play)	LP (Long Play)
VHS	E-30	30 minutes	1 hour
	E-60	1 hour	2 hours
	E-90	1 hour, 30 minutes	3 hours
	E-120	2 hours	4 hours
	E-180	3 hours	6 hours
	E-240	4 hours	8 hours
S-VHS	SE-180	3 hours	6 hours
	SE-60	1 hour	2 hours
	SE-30	30 minutes	1 hour

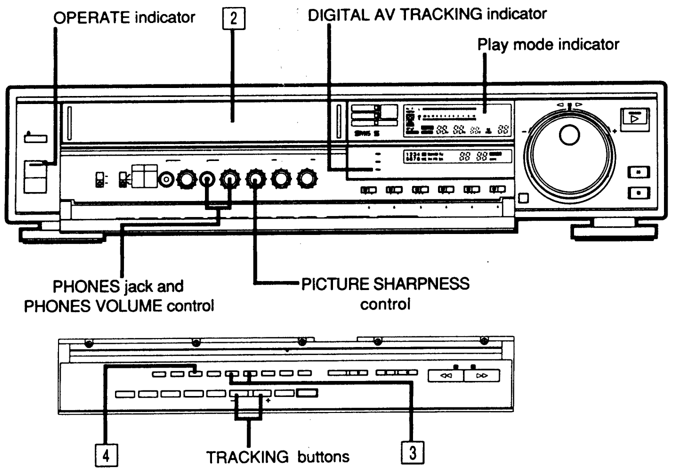
ACCIDENTAL ERASURE PREVENTION

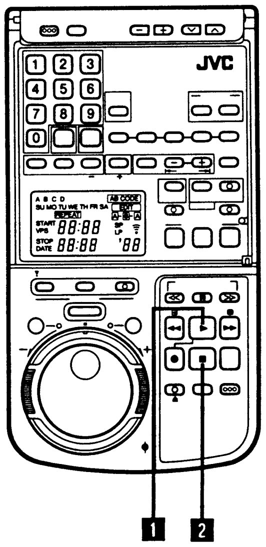
- Video cassettes are equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording cannot be performed. If you wish to record on a cassette whose tab has already been removed, use adhesive tape to block the hole.

VHS Cassette



PLAYING BACK A VIDEO CASSETTE





PREPARATION

1. Switch on the TV receiver.
   - Set the TV receiver to your video channel or to the AV mode (depending on the connection).
2. Load a pre-recorded cassette.
   - Power will be switched on automatically.
   - When a cassette with its safety tab removed is loaded, playback starts automatically.
3. Make the AUDIO MONITOR and MIX setting as required. (See page 20.)
4. Select the desired sound effect with the SOUND MENU button. (See page 21.)

DIGITAL AV TRACKING SYSTEM

This recorder incorporates a digital AV tracking system for automatic tracking adjustment. In most cases you do not have to adjust the tracking.

- When you start playback after inserting a tape, the digital tracking system automatically adjusts the tape path relative to the heads to obtain the best possible pictures and Hi-Fi stereo sound.
- If there is no recorded Hi-Fi audio, tracking is set referring to the video signal. The audio output is automatically switched to normal audio.
- This automatic tracking adjustment also takes place when the playback output level reduces below a certain level.
- The DIGITAL AV TRACKING indicator blinks while the system is searching for optimum tracking, and remains lit as long as the automatic tracking mode continues.

If automatic tracking fails, and some noise bars are visible on the screen, use the manual tracking mode.

- Press both TRACKING (+/–) buttons simultaneously to cancel the automatic mode, then press either button to move noise bars out of the screen.
- To return to the automatic mode, press both buttons simultaneously.

OPERATING PROCEDURE

1 Press the ► button.

2 Press the ■ button at the end of the programme.

Notes:

- The SP or LP mode recording is automatically detedted and played back at the correct speed.
- Irrespective of the S-VHS mode button setting, the S-VHS or VHS recording mode is automatically detected and played back in the correct mode. The S-VHS mode indicator lights for playback of S-VHS recordings.
- For various convenience facilities and special-effects features available during playback, see the next two pages.
- The tape-end auto-rewind mechanism functions in the Play, Fast Forward and Forward Search modes.
- When listening through headphones, if the volume is too low or too high, adjust the PHONES VOLUME control for comfortable listening.

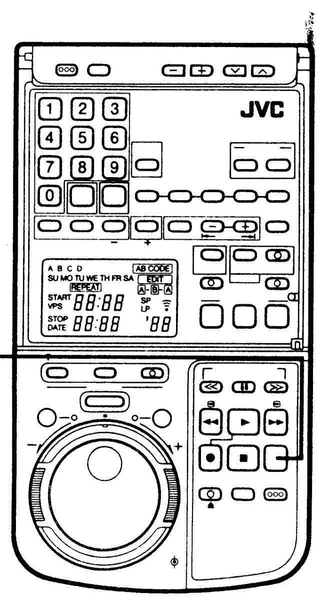
PICTURE SHARPNESS ADJUSTMENT

Images on the screen can be adjusted to a preferred softer on sharper definition by turning the PICTURE SHARPNESS control in the corresponding direction.

CONVENIENT FACILITIES RELATED TO PLAYBACK

SKIP SEARCH

During playback, press the SKIP/BLANK SEARCH button from 1 to 4 times to skip through 30-sec. to 2-min. sections of tape. Playback resumes automatically. Press the ► button to cancel the Skip Search mode midway.



MEMORY PLAY

If you want to watch the tape from its beginning after rewinding, you do not have to wait for completion of rewind to press the ► button.

- Press the ◄◄ button and then ► button within 2 seconds. Playback will start automatically at the beginning of the tape. (Check to see that the counter memory indicator 🄼 is off).
  If you want to watch the tape from the counter reading of "0H 00M 00S", press the C. MEMORY button to obtain 🄼. Then, press the ◄◄ (or ►►) button and then ►.
- While the tape is being rewound, the Play (▷) indicator is blinking. To cancel the Memory Play mode and go to another mode, press the corresponding button (■, ►, ►►, ◄◄).

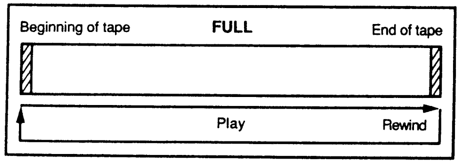
More Next-Function Memory Features

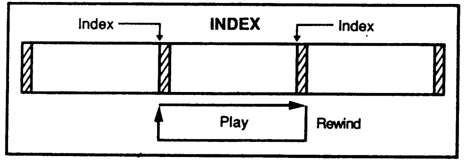
If you are going to eject the cassette, or turn the power off after rewinding the tape, press the EJECT or OPERATE (VIDEO) button within 2 seconds after pressing the ◄◄ button.

Note:
- For various tape access methods that can be used in different applications, refer to pages 34 and 35.

REPEAT PLAYBACK — FULL REPEAT OR INDEX REPEAT

This function allows you to set the video recorder for repeated playback (5 times) of the entire tape ("FULL") or repeated playback (5 times) of a segment of the tape from one index mark to the next ("INDEX").

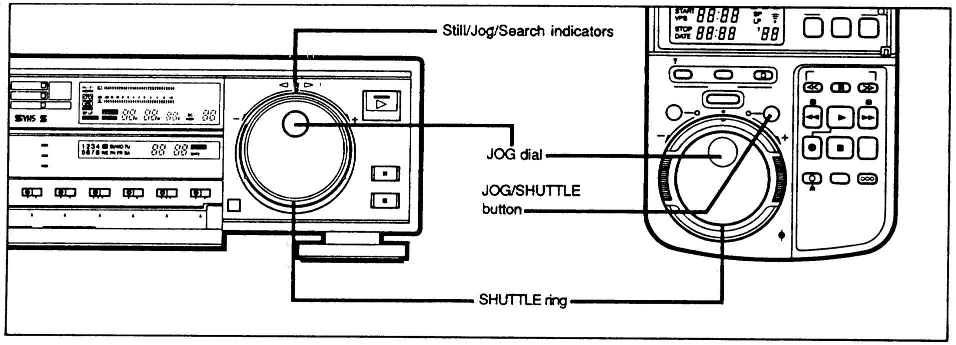




1. Set the REPEAT switch ㉚ as required.
2. With the switch in the INDEX position, you can designate the segment using the Index Search mode or Index Mark function. (See page 35).

Note:
After repeat playback, be sure to reset the REPEAT switch to "OFF".

SPECIAL-EFFECTS PLAYBACK WITH JOG/SHUTTLE CONTROLS

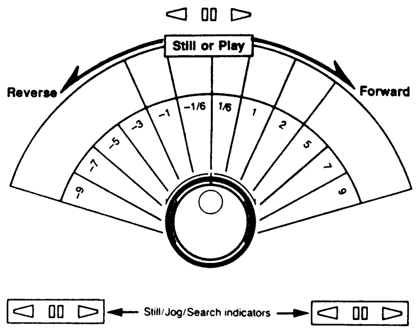


VARIABLE-SPEED SEARCH

SHUTTLE ring (When using the remote control's SHUTTLE ring, press the JOG/SHUTTLE button first so that its LED indicator lights.)

By turning the SHUTTLE ring clockwise or counterclockwise, variable-speed search is possible in either the forward or reverse direction from either the Play or Still mode.

- To search in the forward direction, turn the SHUTTLE ring gradually clockwise. The farther the dial is rotated, the faster the search speed becomes — from 1/6 to 9 times normal in the SP and LP modes.
- To search in the reverse direction, turn the SHUTTLE ring gradually counterclockwise. The farther the dial is rotated, the faster the search speed becomes — from –1/6 to –9 times normal in the SP and LP modes.
- Releasing the SHUTTLE ring produces a still picture on the screen.
- The direction indicators (◁/▷) show in which direction the tape is moving.



FRAME-BY-FRAME PLAYBACK

JOG dial (When using the remote control's SHUTTLE ring, press the JOG/SHUTTLE button first so that its LED indicator lights.)

- While in the Still mode, the tape can be advanced or moved back a frame at a time for precise location of a specific point in a scene. (This function is especially convenient for locating edit-in and edit-out points during editing.)
- Turn the JOG dial clockwise while in the Still mode to advance the picture; counterclockwise to move the picture back.
- If the JOG dial is rotated at a speed of about one revolution per second, the picture moves at about 1/6 normal speed. If rotated at about two revolutions per second, the picture moves at about normal speed playback.

LOADING AND UNLOADING A CASSETTE

Motorized Loading System

- The cassette can be loaded even when the power has not been turned on. Inserting a cassette into the loading slot turns the power on automatically.
- The cassette can be unloaded even when the power has been turned off. If a cassette is inside, pressing the EJECT button turns the power on automatically and, after ejection of the cassette, shuts it off automatically.

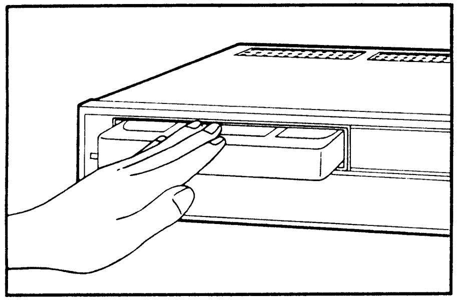
Auto-Play System

- Inserting a cassette, with its safety tab removed, turns the recorder on and playback of the cassette begins automatically.

LOADING

Insert a cassette as illustrated with its labelled side facing you.

- With a cassette inserted, the"[oo]" indicator appears on the FDP.
- The counter resets automatically when a cassette is inserted.



Notes:

- Be sure to insert the cassette firmly into the slot; otherwise it will be automatically ejected.
- The automatic loading mechanism will operate only when the cassette is inserted correctly.

UNLOADING

Press the EJECT button ❷ in the Stop mode.

Caution

- If unloading of a cassette is not possible, check to see whether the TIMER indicator is lit. If so, press the TIMER button so the TIMER indicator extinguishes.
- Do not attempt to pull out the cassette once automatic loading has started.

WARNING

- Do not insert fingers or any foreign object beyond the door flap of the cassette loading slot, as this could lead to injury or damage to the mechanism. Show special caution with children.

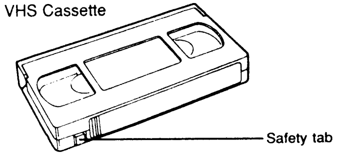
USABLE CASSETTES AND THEIR RECORDING TIME

Both regular VHS and S-VHS cassettes can be used with this video recorder for recording. However, S-VHS recordings cannot be made with regular VHS cassettes.

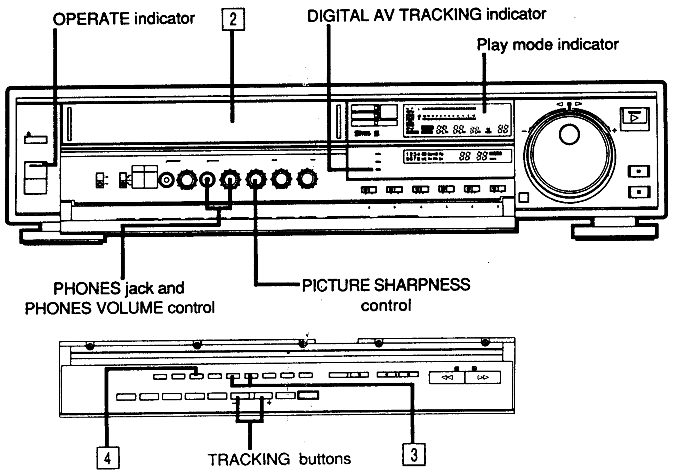
	Type of Cassette	Recording/Playback Time	
		SP (Standard Play)	LP (Long Play)
VHS	E-30	30 minutes	1 hour
	E-60	1 hour	2 hours
	E-90	1 hour, 30 minutes	3 hours
	E-120	2 hours	4 hours
	E-180	3 hours	6 hours
	E-240	4 hours	8 hours
S-VHS	SE-180	3 hours	6 hours
	SE-60	1 hour	2 hours
	SE-30	30 minutes	1 hour

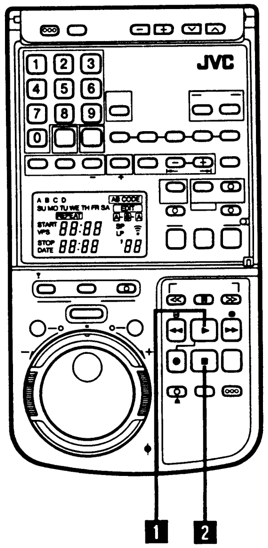
ACCIDENTAL ERASURE PREVENTION

- Video cassettes are equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording cannot be performed. If you wish to record on a cassette whose tab has already been removed, use adhesive tape to block the hole.



PLAYING BACK A VIDEO CASSETTE


OPERATE indicator
2
DIGITAL AV TRACKING indicator
Play mode indicator
PHONES jack and PHONES VOLUME control
PICTURE SHARPNESS control
4
TRACKING buttons
3



PREPARATION

[1] Switch on the TV receiver.
- Set the TV receiver to your video channel or to the AV mode (depending on the connection).

[2] Load a pre-recorded cassette.
- Power will be switched on automatically.
- When a cassette with its safety tab removed is loaded, playback starts automatically.

[3] Make the AUDIO MONITOR and MIX setting as required. (See page 20.)

[4] Select the desired sound effect with the SOUND MENU button. (See page 21.)

DIGITAL AV TRACKING SYSTEM

This recorder incorporates a digital AV tracking system for automatic tracking adjustment. In most cases you do not have to adjust the tracking.

- When you start playback after inserting a tape, the digital tracking system automatically adjusts the tape path relative to the heads to obtain the best possible pictures and Hi-Fi stereo sound.
- If there is no recorded Hi-Fi audio, tracking is set referring to the video signal. The audio output is automatically switched to normal audio.
- This automatic tracking adjustment also takes place when the playback output level reduces below a certain level.
- The DIGITAL AV TRACKING indicator blinks while the system is searching for optimum tracking, and remains lit as long as the automatic tracking mode continues.

If automatic tracking fails, and some noise bars are visible on the screen, use the manual tracking mode.

- Press both TRACKING (+/–) buttons simultaneously to cancel the automatic mode, then press either button to move noise bars out of the screen.
- To return to the automatic mode, press both buttons simultaneously.

OPERATING PROCEDURE

1 Press the ► button.

2 Press the ■ button at the end of the programme.

Notes:

- The SP or LP mode recording is automatically detected and played back at the correct speed.
- Irrespective of the S-VHS mode button setting, the S-VHS or VHS recording mode is automatically detected and played back in the correct mode. The S-VHS mode indicator lights for playback of S-VHS recordings.
- For various convenience facilities and special-effects features available during playback, see the next two pages.
- The tape-end auto-rewind mechanism functions in the Play, Fast Forward and Forward Search modes.
- When listening through headphones, if the volume is too low or too high, adjust the PHONES VOLUME control for comfortable listening.

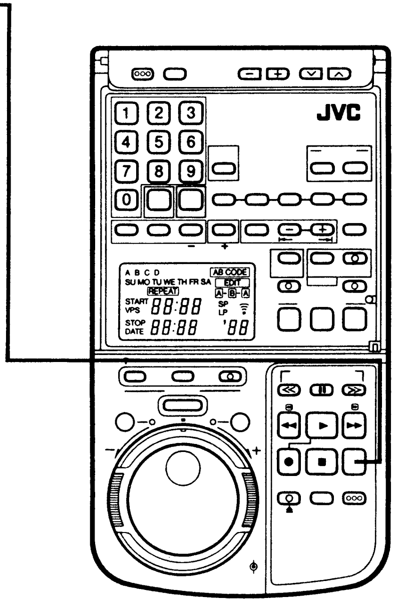
PICTURE SHARPNESS ADJUSTMENT

Images on the screen can be adjusted to a preferred softer on sharper definition by turning the PICTURE SHARPNESS control in the corresponding direction.

CONVENIENT FACILITIES RELATED TO PLAYBACK

SKIP SEARCH

During playback, press the SKIP/BLANK SEARCH button from 1 to 4 times to skip through 30-sec. to 2-min. sections of tape. Playback resumes automatically. Press the ► button to cancel the Skip Search mode midway.



MEMORY PLAY

If you want to watch the tape from its beginning after rewinding, you do not have to wait for completion of rewind to press the ► button.

- Press the ◄◄ button and then ► button within 2 seconds. Playback will start automatically at the beginning of the tape. (Check to see that the counter memory indicator 🄼 is off).
  If you want to watch the tape from the counter reading of "0H 00M 00S", press the C. MEMORY button to obtain 🄼. Then, press the ◄◄ (or ►►) button and then ►.
- While the tape is being rewound, the Play (▷) indicator is blinking. To cancel the Memory Play mode and go to another mode, press the corresponding button (■, ►, ►►, ◄◄).

More Next-Function Memory Features

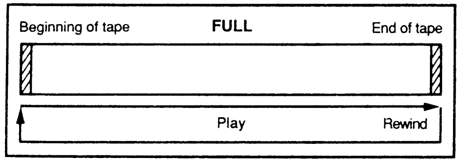
If you are going to eject the cassette, or turn the power off after rewinding the tape, press the EJECT or OPERATE (VIDEO) button within 2 seconds after pressing the ◄◄ button.

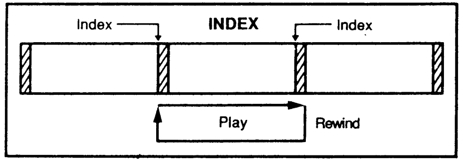
Note:

- For various tape access methods that can be used in different applications, refer to pages 34 and 35.

REPEAT PLAYBACK — FULL REPEAT OR INDEX REPEAT

This function allows you to set the video recorder for repeated playback (5 times) of the entire tape ("FULL") or repeated playback (5 times) of a segment of the tape from one index mark to the next ("INDEX").

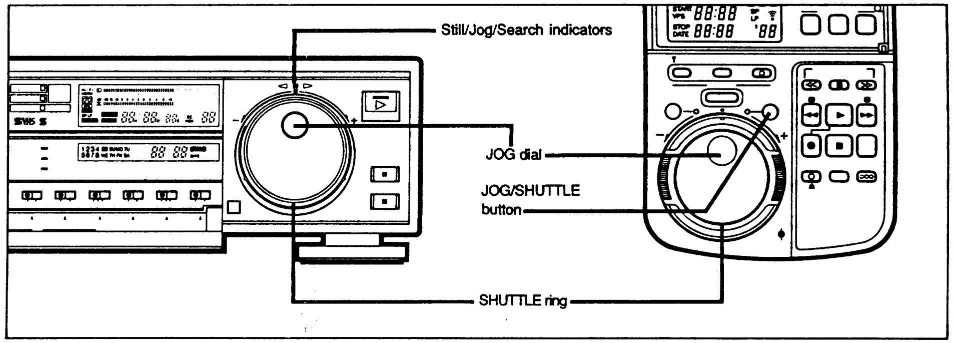




1. Set the REPEAT switch ㉚ as required.
2. With the switch in the INDEX position, you can designate the segment using the Index Search mode or Index Mark function. (See page 35).

Note:
After repeat playback, be sure to reset the REPEAT switch to "OFF".

SPECIAL-EFFECTS PLAYBACK WITH JOG/SHUTTLE CONTROLS

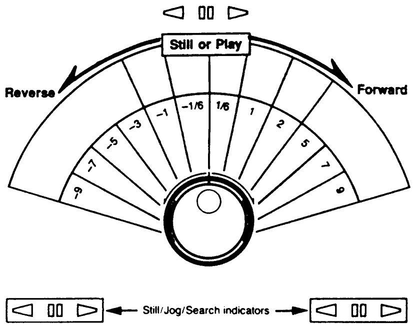


VARIABLE-SPEED SEARCH

SHUTTLE ring (When using the remote control's SHUTTLE ring, press the JOG/SHUTTLE button first so that its LED indicator lights.)

By turning the SHUTTLE ring clockwise or counterclockwise, variable-speed search is possible in either the forward or reverse direction from either the Play or Still mode.

- To search in the forward direction, turn the SHUTTLE ring gradually clockwise. The farther the dial is rotated, the faster the search speed becomes — from 1/6 to 9 times normal in the SP and LP modes.
- To search in the reverse direction, turn the SHUTTLE ring gradually counterclockwise. The farther the dial is rotated, the faster the search speed becomes — from –1/6 to –9 times normal in the SP and LP modes.
- Releasing the SHUTTLE ring produces a still picture on the screen.
- The direction indicators (◁/▷) show in which direction the tape is moving.

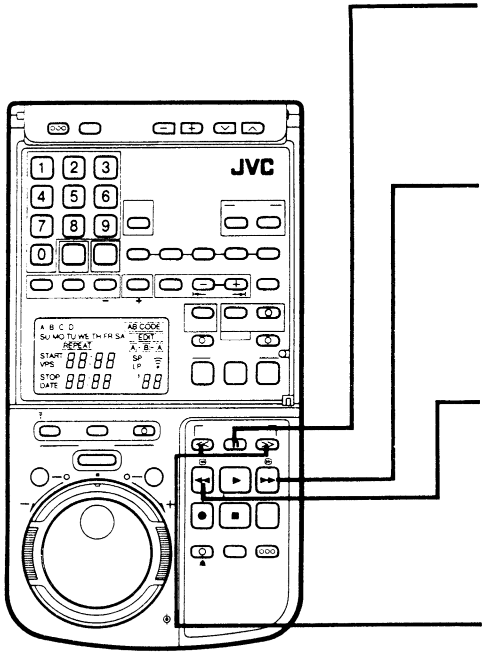


FRAME-BY-FRAME PLAYBACK

JOG dial (When using the remote control's SHUTTLE ring, press the JOG/SHUTTLE button first so that its LED indicator lights.)

- While in the Still mode, the tape can be advanced or moved back a frame at a time for precise location of a specific point in a scene. (This function is especially convenient for locating edit-in and edit-out points during editing.)
- Turn the JOG dial clockwise while in the Still mode to advance the picture; counterclockwise to move the picture back.
- If the JOG dial is rotated at a speed of about one revolution per second, the picture moves at about 1/6 normal speed. If rotated at about two revolutions per second, the picture moves at about normal speed playback.

SPECIAL-EFFECTS PLAYBACK WITH OTHER BUTTONS



STILL PLAYBACK AND FRAME ADVANCE

❚❚ button

- To view a still picture, press this button in the Play mode.
- To advance the picture frame by frame, press this button again.
- To return to normal playback, press the ▶ button.
- When the Still mode continues for longer than about 5 minutes, the Stop mode will be entered automatically.

HIGH-SPEED FORWARD SEARCH

▶▶ button

- To fast forward the tape, press this button in the Stop mode.
- To shuttle search the tape in the forward direction, press this button in the Play mode.
- The shuttling speed is about 9 times normal.
- Press the ▶ button to return to normal playback.
- For briefer scanning, keep the button pressed for more than 2 seconds; when you release the ▶▶ button, the Search mode will be cancelled.

HIGH-SPEED REVERSE SEARCH

◀◀ button

- To rewind the tape, press this button in the Stop mode.
- To shuttle search the tape in the reverse direction, press this button in the Play mode.
- The shuttling speed is about 9 times normal.
- Press the ▶ button to return to normal playback.
- For briefer scanning, keep the ◀◀ button pressed for more than 2 seconds; when you release the button, the Search mode will be cancelled.

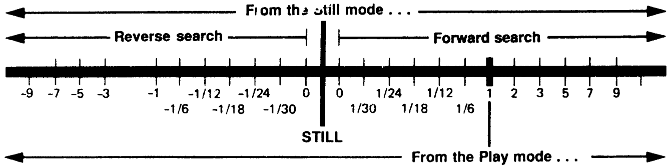
VARIABLE-SPEED SEARCH AND SLOW MOTION

VARIABLE SEARCH buttons (<</>>)

The variable search buttons control both the direction and speed of tape search, making possible fast- and slow-motion playback in either forward or reverse direction from either the Still or Play mode.

Operation tips:

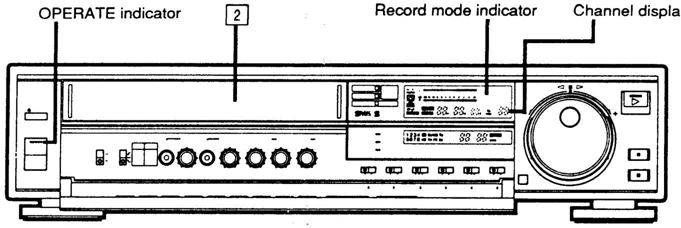
- To increase speed while in the forward direction, press >> repeatedly; to decrease, press << repeatedly. The direction reverses after leaving the Still mode.
- To increase speed while in the reverse direction, press << repeatedly; to decrease, press >> repeatedly. The direction reverses after leaving the Still mode.
- To return to normal playback, press the Play button.

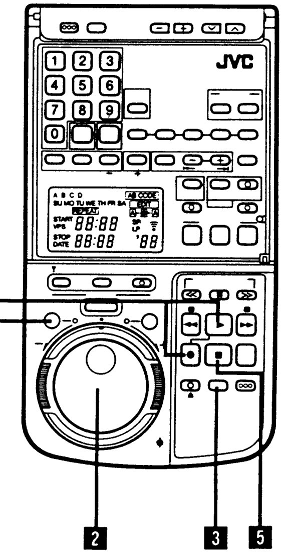


Notes:

- With some televisions, the still picture may be unstable. If vertical vibration of the picture is observed, attempt to correct it by pressing the V.LOCK buttons.
- If noise bars are visible in the Special-Effects Playback mode, attempt to correct it in the manual tracking mode as described on page 23.
- No audio is available during any special-effects playback mode.
- When playing back VHS LP recordings in the Special-Effects Playback mode, the picture will be distorted, and there may be a loss of colour.

BASIC OPERATION FOR RECORDING TV PROGRAMMES





PREPARATION

1. Switch on the TV receiver.
   - Set the TV receiver to your video channel , or to the AV mode (depending on the connection).
2. Load a cassette (with safety tab in place). Power will be switched on automatically.
   - To record in the VHS mode with an S-VHS cassette, press the S-VHS button to turn off the S-VHS indicator.

OPERATING PROCEDURE

1. Press the CH/SET. SELECT button so that the indicator lights.
2. Select the channel you wish to record with the JOG dial.
3. Select the recording speed (SP or LP).
   SP: 4 hours with an E-240 cassette.
   LP: 8 hours with an E-240 cassette.
4. Press the ● and ▶ buttons simultaneously to start recording. "INDX" will appear on the FDP and blink to show that an index code is being recorded.
   (When using the video recorder's front panel control buttons, press REC/ITR once to start recording.)
5. Press the ■ button at the end of the programme.

RECORDING ONE TV PROGRAMME WHILE WATCHING ANOTHER

A programme not being viewed can be recorded while you enjoy viewing another programme.
This permits the recorded programme to be played back later at your convenience.

The key points to remember are:

- Select the channel you wish to record with the recorder's channel selector.
- Select the channel you wish to view with the TV receiver's channel selector.

Notes:

- If the REC/ITR button is pressed more than once, the Instant Timer Recording mode will be entered (see page 30). To return to ordinary recording, repeatedly press the REC/ITR button until the ITR indicator on the FDP extinguishes.
- If there is part of the programme you do not want to record, press the ❚❚ button. To release the Pause mode. Press the ▶ button.
- When recording is restarted from the Record-Pause mode, assemble recording is performed so that the playback picture will not distort at the edit point. A few frames recorded before the pause may be erased due to overlap of the new recording. This is not due to any defect of the unit.
- When the Record-Pause mode continues for longer than about 5 minutes, the Stop mode will be entered automatically.
- If the record button cannot be engaged, check to see if the cassette safety tab has been removed. (See page 22).
- When the end of the tape is reached during recording, the tape is automatically rewound to the beginning and stops.
- The built-in tuner's automatic channel lock mechanism prevents the selected channel from being altered during recording. Therefore, if you wish to change the channel during recording, first engage the Record-Pause mode and then select a different channel by using the JOG dial on the remote control unit (first press the CH/SET•SELECT button).

RECORDING STEREO TV PROGRAMMES

(Applicable only to the West German Sound-Multiplex TV system)

If stereo TV programmes are broadcast in your area, this recorder automatically receives them in stereo. When a stereo programme is being received, the STEREO indicator lights and recording is made in stereo on the hi-fi audio track and in monaural (mixed L and R) on the normal audio track. To listen to the stereo soundtrack during recording, set the AUDIO MONITOR button ㊳ ⑪ for Hi-Fi L and R. If this button is left set either in the Hi-Fi L or R position, you will hear only one channel while recording, though the recording is being made in stereo.

- If the quality of the stereo sound being received is poor, set the FORCED switch ㉛ to MONO. The STEREO indicator will go off, and the broadcast will be received in monaural with better quality.

RECORDING BILINGUAL TV PROGRAMMES

(Applicable only to the West German Sound-Multiplex TV system)

When a bilingual TV programme is being received, the BILINGUAL indicator lights. There is a switch to select the soundtrack to be recorded on the normal audio track, however, because both soundtracks are recorded always on the hi-fi track for selective listening, you can ignore the switch labelled TV SOUND in most cases unless you need a special soundtrack on the normal audio track.

- Set the TV SOUND switch ㉙ to MAIN to record the main soundtrack (local language); to SUB to record the sub soundtrack (foreign language).
- To listen to the selected soundtrack from the hi-fi audio track while recording, press the AUDIO MONITOR button for either Hi-Fi L or R.
- To listen to the soundtrack being recorded on the normal audio track, press the MIX button ㊲ for NORM.

RECORDING FM SIMULCAST TV PROGRAMMES

FM simulcast TV programmes can be recorded using an FM stereo tuner. Connect necessary components. (Connect the FM tuner to the rear panel AUDIO IN connectors.) Select the TV channel broadcasting the simulcast programme with the recorder's channel select buttons and tune the FM stereo tuner to the station broadcasting the soundtrack for that TV programme.

The only difference from the basic recording procedure on page 27 is an additional step.

- Press the SIMUL button ㊴.
  Then the SC indicator on the FDP will light. With this setting, the video and audio signals from the built-in tuner will be recorded on the video and normal audio track, and the audio signal from the FM stereo tuner will be recorded on the hi-fi audio track.

Notes:

- After finishing recording, be sure to press the SIMUL button to switch back to the Tuner mode.
- While recording simulcast programmes, it might happen that the hi-fi sound distorts momentarily at switching points between different programmes. This is not due to any defect of the unit.

RECORDING A TV PROGRAMME WHILE RECORDING AN INDEPENDENT AUDIO SOURCE

Using the "simulcast" recording function, you can record independent audio and video programmes, because the TV soundtrack is not lost, but recorded on the normal audio track. While recording a TV programme, record any audio source independently.

- Connect an audio component (such as an FM tuner) to the AUDIO IN connectors (62).
- Press the SIMUL button. The SC indicator on the FDP will light.

Notes:

- If you stop recording to avoid unwanted material of the TV programme using the PAUSE/STILL button, the audio programme from an external source is also cut.
- If television broadcasting comes to an end during recording, the hi-fi sound being recorded from an external source may distort. It is recommended that you check the timetable of TV broadcasts in advance.
- After finishing recording, be sure to press the SIMUL button to switch back to the Tuner mode, otherwise recording on the hi-fi audio track from the built-in tuner will not be possible.

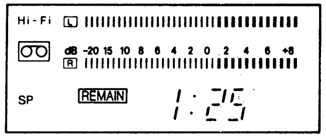
REMAINING TAPE TIME INDICATION

The tape counter can be switched to display the remaining tape time.

- Press the DISPLAY button to obtain the REMAIN tape time indication in hours and minutes on the FDP.

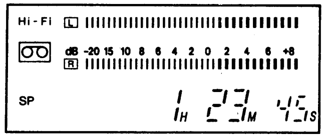
Note:

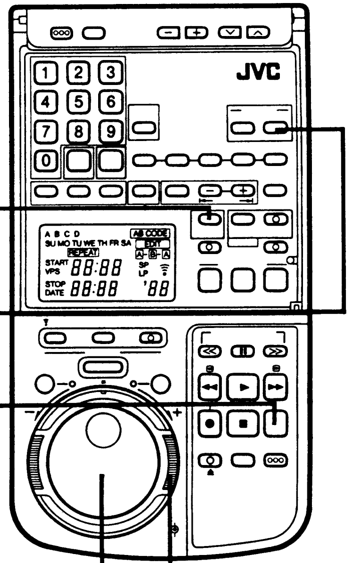
- The indicated remaining time is approximate.



ELAPSED RECORDING TIME INDICATION

When you need to know the exact time of a recording, press the COUNTER RESET button before starting recording or playback. The counter will be reset to "0H 00M 00S" and show the exact elapsed time as the tape runs.

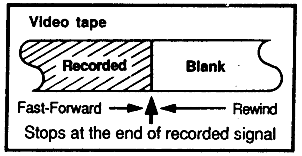




BLANK SEARCH

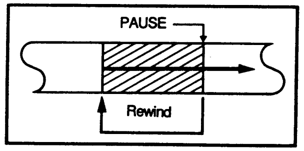
When you want to record a new programme on a partially recorded tape, use this function to automatically locate the end of a recorded section. Even when a fully recorded tape is used for re-recording new material, this system can be used to detect the end of the newly-recorded material.

- Insert a cassette and press the SKIP/BLANK SEARCH button.
- If a recorded signal is present, the recorder automatically enters the Fast Forward mode, and stops automatically around the end of that recorded section. Before starting recording, play back the tape to determine where to start a new recording.
- If the SKIP/BLANK SEARCH button is pressed where no signal is recorded, the recorder automatically enters the Rewind mode, searches for the end of the preceding recorded segment, and stops.
- When the SKIP/BLANK SEARCH button is pressed, the tape counter is automatically switched to the REMAIN mode and shows the remaining tape time in hours and minutes. To switch back to the realtime counter mode, press the DISPLAY button.



RETAKE FUNCTION

While in the Record-Pause mode, turning the JOG dial or SHUTTLE ring (First, press the JOG/SHUTTLE button) initiates search at the corresponding speed in the corresponding direction. Releasing the control engages the Record-Pause mode. If you have recorded unnecessary material because of having engaged the Record-Pause mode too late, use this function to return to the position where you want the next recording to start. Then, simply press the ► button when you want to re-start recording.



INSTANT TIMER RECORDING

24-HOUR TIMER

The 24-Hour Timer Recording feature allows unattended automatic starting and stopping of the recording of a single programme which starts within a 24-hour period.

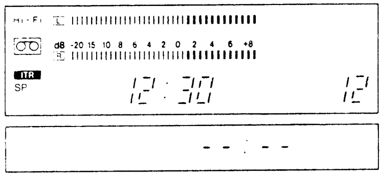
Preparation

1. Insert a cassette with its safety tab in place. The recorder turns on automatically.
2. Select the channel you wish to record from.
3. Select the recording speed (SP or LP).

Setting the timer

1 Press the START button ㊷ to engage the 24-Hour Instant Timer Set mode. The following appears on the FDP with the current time.

FDP


Hi-Fi
dB -20 15 10 8 6 4 2 0 2 4 6 +8
ITR
SP
12:30
12
- - : - -

- Each pressing delays the START time by 30 minutes
- For a more precise time setting, use the SELECT and SET buttons.

2 After reaching the desired START time, press the REC/ITR button the required number of times to set the desired length of recording time.

- For a more precise time setting, use the SELECT and SET buttons.

3 After confirming the START time and recording length, press the OPERATE button.

- "ITR" remains on the FDP and the 24-Hour Instant Timer Standby mode will automatically engaged.
- If the programme has not been correctly preset, the "ITR" indicator will blink for about 10 seconds when the OPERATE button is pressed. Recheck the programmed data.

Notes:

- At each step of the timer setting procedure, if no data is entered within 10 seconds, the 24-Hour Timer Set mode is cancelled, and the current time is displayed.
- To cancel the 24-Hour Timer Set mode, press the CANCEL button once or twice depending on the setting status.
- 24-Hour Timer Recording has priority over other timer programme settings; therefore, no other programmes, set for timer recording, will be recorded until 24-Hour Timer Recording has been executed.

OFF-TIMER

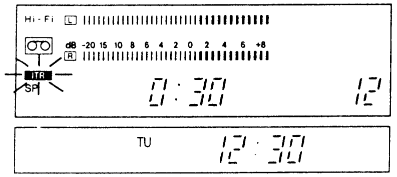
- Start recording as described on page 27.

After you start recording, the recorder can be set to stop automatically after a certain period of time. Use this facility for starting a recording before you go to bed or leave home.

1 Press the REC/ITR button while recording (or twice if in the Stop mode).

- The following indication will appear on the FDP, to show that the recorder is recording in the Instant Timer Recording mode and power will switch off after 30 minutes.

FDP


Hi-Fi
dB -20 15 10 8 6 4 2 0 2 4 6 +8
ITR
SP
0:30
12
TU
12:30

2 Each time the REC/ITR button is pressed, recording time increases by 30 minutes to a maximum of 4 hours. If the REC/ITR button is pressed again, the Normal Recording mode will be entered.

- For a more precise time setting, use the SELECT and SET buttons to set to the exact time required (possible up to 8 hours and 59 minutes).

Notes:

- While recording is in progress, the displayed time counts down; when 0:00 is reached, the Record mode is released after 10 seconds and the power is switched off.
- If you want to stop recording after having started recording in the Instant Timer Record mode, press the STOP button.
- If instant timer recording is engaged while the unit is in the Pause mode, the timer will count down normally, but recording will not begin until the PLAY button is pressed.
- When the Instant Timer Record-Pause mode continues for longer than 5 minutes, the mode is released and power is switched off.
- If you want to check the elapsed time (Realtime Counter reading) on the FDP while performing Instant Timer Recording, press the DISPLAY button to obtain the desired indication. After about 5 seconds, the indicator will return to the ITR mode and the remaining time indication will reappear automatically.

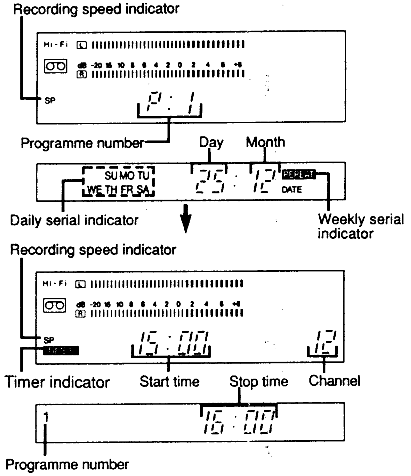
AUTOMATIC TIMER RECORDING

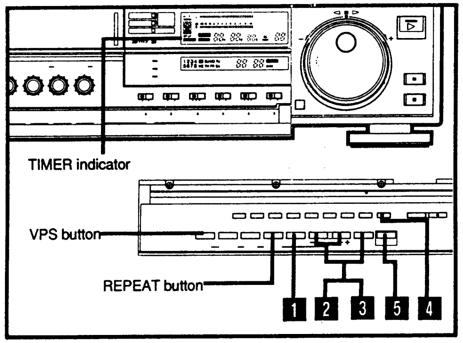
First of all, load a cassette (with safety tab in place); power will be switched on automatically.

A. Local Programming

1 Press the PROG. button.

- The display will change to the Timer Set mode for programme number "1". To advance to programme numbers 2 – 8, press either SET button a required number of times.
- By pressing the remote control's OSD button while the FDP is in the Timer Set mode, the on-screen display is also available.


Recording speed indicator
Hi-Fi
dB -20 16 10 8 6 4 2 0 2 4 6 +8
SP
P: 1
Programme number
Day
Month
SU MO TU
WE TH FR SA
25 · 12
REPEAT
DATE
Daily serial indicator
Weekly serial indicator
Recording speed indicator
15:00
12
Timer indicator
Start time
Stop time
Channel
1
16:00
Programme number


TIMER indicator
VPS button
REPEAT button
1
2
3
5
4

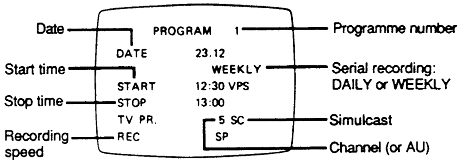
2 [2] Set the date by using the SHUTTLE ring or the SELECT button and the JOG dial or the SET buttons.

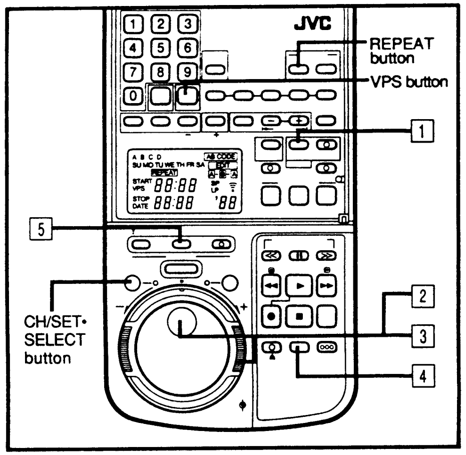
- Select the item to be set with the SHUTTLE ring or the SELECT button; the selected item will blink.
- Set the desired data with the JOG dial or the SET -/+ buttons.
- To record a daily serial starting on the day of setting, there is no need to enter any date figure; simply advance to the next item.
- To record a weekly serial, press the REPEAT button once.
- To record a daily serial starting on a certain day, press REPEAT twice.

B. On-Screen Remote Programming

[1] Press the VTR PROG. button.

- The TV screen will change to the Timer Set mode for programme number "1" in one of the selected languages. (For language selection, see page 14.) To advance to programme numbers 2 – 8, first press the CH/SET•SELECT button and turn the JOG dial.


Date
PROGRAM 1
Programme number
DATE 23.12
WEEKLY
Serial recording: DAILY or WEEKLY
Start time
START 12:30 VPS
Stop time
STOP 13:00
TV PR. 5 SC
Simulcast
Recording speed
REC SP
Channel (or AU)


JVC
REPEAT button
VPS button
1
5
2
3
4
CH/SET• SELECT button

3 [3] Set the start time, stop time and channel in succession in the same way as for setting the date.

- When not using the VPS recording system with the VPS adapter connected, before setting the channel, press the VPS button to make "VPS" disappear.
- For programming the timer to record an external source, while the channel position is blinking, turn the JOG dial or press SET –/+ until the "AU" indicator appears in the channel display section.

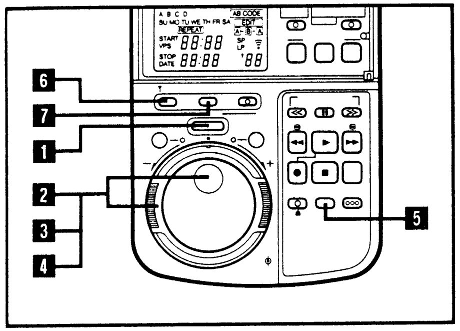
4 [4] Select the recording speed (SP or LP).
SP: 4 hours with an E-240 cassette.
LP: 8 hours with an E-240 cassette.

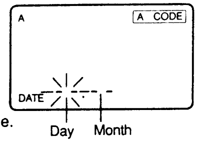
5 [5] After making sure that the cassette is loaded, press the TIMER button.

- The Timer Recording Standby mode will be engaged with the TIMER indicator and the preset programme number(s) illuminated and the power turned off.
- With no cassette loaded, the TIMER and "cassette loaded" indicators will continue blinking.
- A cassette whose safety tab has been removed will be ejected automatically.
- If a preset programme contains errors, the programme number will not illuminate. Recheck the programmed data.

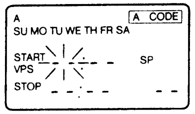
C. Independent Remote Programming

- *The remote control incorporates 4 programme memories (A, B, C and D).*
- *The programmed data is held in memory even after it has been transferred to the recorder.*

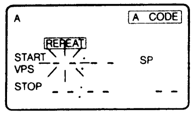




1. Press the MEMORY PROG. button.
   - The LCD will be activated for programme memory "A".
   - To advance to pro-grammes B to D, turn the JOG dial.
2. Turn the SHUTTLE ring clockwise.
3. Enter the date turning the JOG dial, then turn the SHUTTLE ring clockwise.
   - Invalid numbers will be rejected.
   - To record a daily serial starting on the day of setting, turn the SHUTTLE ring clockwise without entering any date figure.
   - To record a weekly serial, press the REPEAT button once and enter the date.
   - To record a daily serial starting on a certain day, press the REPEAT button twice and enter the date.

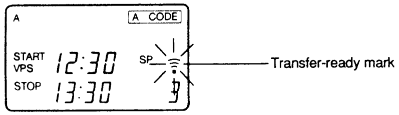


For daily serial setting



For weekly serial setting

4. Enter the start time, stop time and channel in succession.
   - When not using the VPS recording system with the VPS adapter connected, before setting the channel, press the VPS button to make "VPS" disappear.
   - If the VPS adapter is not connected, the VPS information is not memorized in the recorder even though the VPS indicator is visible on the LCD. Therefore, it is not necessary to turn it off.
   - For programming the timer to record an external source, turn the JOG dial counterclockwise while the channel is blinking; "AU" will appear on the LCD. When transferred in step 6, "AU" will appear in the channel display section on the FDP.



5. Select the recording speed (SP or LP).
   SP: 4 hours with an E-240 cassette.
   LP: 8 hours with an E-240 cassette.
6. Direct the remote control to the recorder's Remote Sensor window ⑬ and press the TRANS button.
   - The programmed data will be loaded in one of the recorder's memories (1—8), the vacant one of the smallest programme number.
   - If all programme memories are full, the recorder's clock will blink and transmission will not take place.
   - Call up the programme(s) to be cancelled by pressing the VTR PROG. button, then press the VTR CANCEL button to cancel it. Data transfer can now be made by pressing TRANS again.
7. Press the TIMER button.
   - Check to see that the TIMER indicator appears on the FDP.

Setting the date, start and stop times, and channel

- It is not possible to set the date, start and stop times unless the date and clock have previously been set.
- Enter the data while the digits are blinking.
- The stop time can be set within 24 hours of the start time.
- Non-applicable numbers (such as January 32, February 30 for dates, 24 or larger for hours, 60 or larger for minutes and 49 or larger for channels) will be rejected when set to.
- For programming the timer to record an FM simulcast programme, press the SIMUL buton (39) on the recorder.

Cancelling the preset data

- The preset programmes can be cancelled. First disengage the Timer Standby mode and then engage the Timer Set mode for the programme number you wish to cancel and then press the CANCEL button (49) or the VTR CANCEL button. Or for the remote control's memory, press the MEMORY CANCEL button.
- An executed programme is automatically cleared.

Checking the programmed data

- Checking can be performed anytime, even after the TIMER button has already been engaged. To do this, press the PROG. button (51) while in the Timer Standby mode. The programme number will blink on the FDP and you can check each programme by advancing programme numbers with the JOG dial ❸ or SET buttons (52). If re-programming is required, disengage the Timer Standby mode and use the regular programming method. Pressing the PROG. button and/or SET buttons or turning the JOG dial engages the FDP in the check mode in which no position blinks and data correction is not possible. For correction of data, turn the SHUTTLE ring or press the SELECT button (53) and move the cursor to a position which requires correction.

Timer recording operation

- When the preset start time is reached, recording starts.
- After timer recording, the power is switched off. If the end of the tape is reached during timer recording, the cassette is automatically ejected and then the power is switched off.

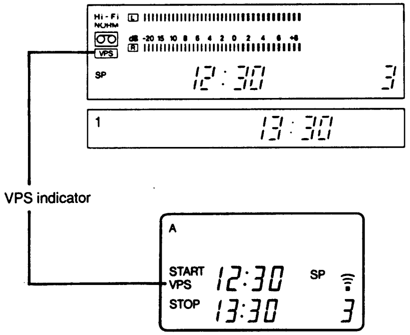
VPS RECORDING

VPS (Video Programme System) is a broadcast system employed by TV stations in certain countries. In the VPS system, TV stations transmit different VPS codes for different TV programmes, which control the starting and stopping of the video recorder and have precedence over times preset in the timer for accurate recording of a particular programme from start to finish. For using this function, an optional adapter, the VPS adapter, or the VPS/VPT (VPV) adapter (if teletext operation is also required), must be connected to the rear panel of the recorder.

1. Press the PROG. button (51) (or the VTR PROG. button ㉒) or, for the remote control's memory, the MEMORY PROG. button ㊴.
2. Set the date, start time, stop time and channel in the same way as for timer programming.
3. Press the VPS button (47) or the VPS/CH button ⑬.
   - All timer data will be converted to VPS codes and stored in memory.
4. Press the TIMER button (54) or ㊲.
   - The recorder will enter the VPS Standby mode at 20:00 on the day previous to the preset day and remain engaged until 3:59 on the following day, if the intended programme has not yet been broadcast.
   - When a VPS code corresponding to the intended TV programme is detected during the VPS Standby mode, recording will start. When the VPS code changes to another, recording will stop.
   - When an interruption code is detected during VPS recording, the VPS standby mode is engaged and recording restarts when the regular VPS code is restored.

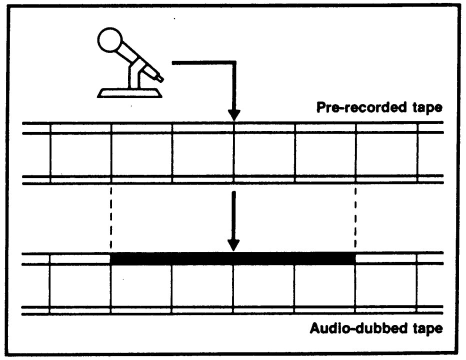
Note:

- Operation at the end of VPS recording is the same as with ordinary timer recording.



AUDIO DUBBING

Audio dubbing means recording a new soundtrack on a pre-recorded tape. In other words, the previously recorded sound is erased and replaced with a new soundtrack. **Audio dubbing is applicable only to the longitudinal audio track (normal audio).** Therefore, a dubbed narration can be heard together with the original hi-fi sound.



Operation

1. Switch on the TV receiver.
   - Adjust it to your video channel or to the AV mode (depending on the connection).
2. Load a pre-recorded cassette. Power will be switched on automatically.
3. Connect a microphone to the MIC jack ⑯.
4. Turn the JOG dial (first, press CH/SET·SELECT) to obtain "AU" on the FDP.
5. Be sure that the MIC MIX control ⑰ is set to the appropriate level when required. Connect a pair of headphones to monitor this sound level adjustment.
6. Press the PLAY button ⑩ to start playback and then use the JOG/SHUTTLE controls to search for the point from which you wish to start audio dubbing. Release the JOG dial or the SHUTTLE ring at the start point of audio dubbing.
7. Press the AUDIO DUB button (44).
8. Press PLAY.
   - Audio dubbing will start.

Notes:

- If whistling or howling is heard during audio dubbing, reduce the TV volume or move the microphone farther away from the TV. Recording is being performed even if sound is not heard from the TV receiver. If you want to monitor the sound being recorded, connect headphones to the PHONES jack.
- Marking index codes is not possible while audio dubbing is being performed.

CAUTION:

- Audio dubbing is not possible with an audio source connected to the rear panel AUDIO IN connectors.

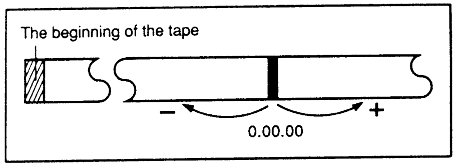
CONVENIENT TAPE ACCESS FUNCTIONS

REALTIME TAPE COUNTER

Unlike usual tape counters which show tape locations in numbers, this realtime tape counter shows tape time precisely in hours, minutes and seconds in all modes. The counter resets automatically when a cassette is inserted.

REALTIME SEARCH

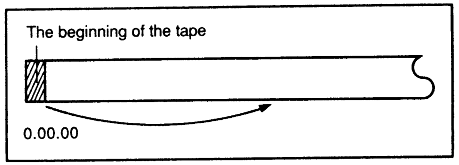
To locate any point on the tape a specified time away from the current position in either direction.



1. Press the remote control's GO-TO button while in the Play, Still or Stop mode.
   - The FDP will show "GO-TO –H —M —S" if the recorder did not detect the leader tape when the cassette was loaded; it will show the current tape counter reading if the leader tape has been detected.
   - "GO-TO 0H 02M 34S" (for example) will appear if the recorder has already detected the leader tape, to show the current tape counter reading in terms of realtime from the tape's beginning.
2. Press either CURSOR (|←/→|) button to specify the direction.
3. Specify the time to the point to be located, by using the numeric keys.
   - Always key in a full number.
4. Press the ► or ■ button (❚❚ button, if either the Play or Still mode is already engaged).
   - Depending on the situation, search will take place in either the Shuttle Search mode or in the Fast Forward or Rewind mode. After the specified point is reached, playback starts automatically, the tape stops automatically or enters the Still mode, depending on the command.

REALTIME GO-TO

To locate any point on the tape a specified time away from the beginning of the tape.



The procedure is the same as for the Realtime Search except step 2. Specifying the direction is not necessary.

Notes:

- Each step in the operation procedure must be followed by the next within 60 seconds, otherwise the Go-To or Search mode will be cancelled.
- Use of the other control buttons while in the Go-To or Search mode cancels that mode.
- If the specified time exceeds the tape length, the tape fast forwards to the end and then rewinds to the beginning and stops or enters the Play mode.

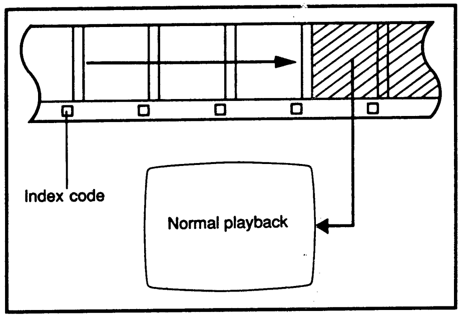
COUNTER MEMORY FUNCTION

1. Press the COUNTER RESET button at a point which you may wish to locate later.
   - The counter will read "0H 00M 00S".
2. Press the COUNTER MEMORY button. M will appear on the FDP.
3. Press the ◄◄ (or ►►) button when you need to return to the designated point.
   - The tape will rewind (or fast forward) and stop at about "0H 00M 00S" automatically.
   - The Counter Memory function can also be used in conjunction with the Memory Play function (page 24).

CONTINUED ON NEXT PAGE . . .

INDEX SEARCH

The Index Search function gives you automatic access to the beginning of individual recordings on the cassette tape. An index code is automatically placed on the tape's control track each time a recording is begun. You can access any one of up to 99 of these indexed segments in either the forward or reverse direction.



1. Press the INDEX button while in the Play or Stop mode.
   - The channel display of the FDP will change to the Index Search mode and "INDX" will light.
2. Specify the index number (1 – 99) using the numeric keys within 10 seconds.
   - The specified number will appear on the FDP.
3. Press either the ◄◄ or ►► button.
   - The tape will move and the index numbers count down to 0, where normal playback will start.
   - If the INDEX button was pressed in the Play mode, the screen shows search pictures; if the button was pressed in the Stop mode, the index codes are detected in the Rewind or Fast-Forward mode.

Notes:

- To cancel the Index Search mode before completion, press the ► or ■ button.
- If the end of the tape is reached while still in the Index Search mode, the mode is cancelled and the tape rewound.

MANUAL INDEX MARK/ERASE

Index codes are automatically placed at the beginning of recordings which are started from the Stop or Timer Standby mode. You can use the MARK button to add extra codes, and the ERASE button to erase codes. In neither case is there any effect on the audio or video recordings on the tape.

Erase

In the Play or Still mode, press ERASE button to erase the next index code. The tape is automatically fast-forwarded and when an index code is detected, it will be erased automatically. "INDX" on the FDP remains lit during the searching process and blinks during the erasing process.

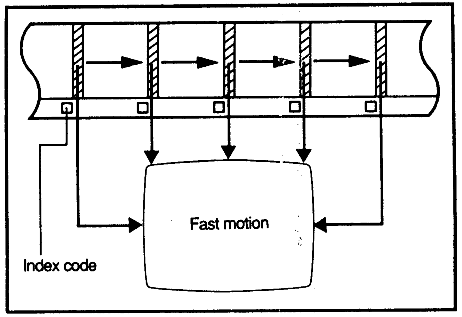
Mark

In the Play or Record mode, press MARK button once to put an index code onto the tape. "INDX" appears on the FDP and blinks during the marking process.

Notes:

- Index codes cannot be added or erased on a tape with its safety tab removed.
- The Erase mode is cancelled either after one index code has been erased or the Play mode is cancelled.

INTRO SEARCH



The Intro Search function lets you visually check the contents of each recording by playing back in fast motion a short segment of a programme each time an index code is detected.

1. Press the INTRO button while in the Play or Stop mode.
   - The INDX indicator on the FDP will light.
2. Press the ◄◄ or ►► button within 2 seconds.
   - The Intro Search will start in the corresponding direction.
   - Each time an index code is detected, the corresponding part is played back at the search speed (9 times normal) for about 5 seconds.
3. When you find the section you want to view, simply press the ► button.
   - Normal playback will start.

RECORDING FROM AN EXTERNAL SOURCE

By connecting an external video source (such as a 2nd video recorder, VideoMovie camera-recorder, etc.) to this recorder, tape-to-tape transfer is possible.
- For connection of these units an appropriate cable is necessary.

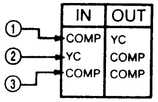
RECORDING VIA THE AUDIO/VIDEO SOCKET

- Connect the AUDIO/VIDEO socket (55) to the appropriate audio/video output of the source equipment.
- Engage the recorder in the AUX mode ("AU" in the channel display) and set the AV/S button ㊱ so that the "S" indicator does not appear on the FDP.
- Set the AV IN/OUT SELECT switch ⑮ as required. (Refer to the chart.)
- Put the source equipment in the Play mode.
- Put the recorder in the Record mode.

Notes:
- For the operation of the source equipment, refer to the instruction manual of the relevant machine.
- When the optional VPT(VPV) adapter is connected to the AUDIO/VIDEO socket of the HR-S5800E, the adapter's SCART connector functions as the AUDIO/VIDEO socket (output only). Therefore, it is not possible to record via the 21-pin socket of the VPT adapter.

Setting of the AV IN/OUT SELECT switch

When this recorder is used as the source player, this switch functions as an AV OUTPUT SELECT switch, and when used as the recorder, it functions as an AV INPUT SELECT switch.



HR-S5800E / Source equipment	As the source player	As the recorder
With a 21-pin AV socket	② or ③	① or ③
With a 21-pin Y/C socket	①	②

RECORDING VIA S IN CONNECTOR

- Connect the S IN connector (56) to the S-Video output connector of the source equipment.
- Connect the AUDIO IN connectors (62) to the audio output connectors of the source equipment.
- Insert an S-VHS cassette and engage the AUX mode.
- Press the AV/S button so that the "S" indicator appears on the FDP.
- Put the source equipment in the Play mode.
- Put the recorder in the Record mode.

EDITING TO ANOTHER VIDEO RECORDER

This video recorder can also be used as the source player when editing tapes. This video recorder's remote PAUSE terminal is designed to accept a preroll command when used as a source player with a video deck which is preroll-capable and equipped with a Pause Control Output terminal. This combination makes possible synchronized preroll editing for high-quality editing results.
- confirm the setting of the AV IN/OUT SELECT switch referring to the chart above.

EDITING FROM A VIDEOMOVIE

- Connect the VideoMovie's AV OUT connector to the video recorder's AUDIO/VIDEO socket.
- Connect the mini-plug of the AV output cable to the remote PAUSE terminal of the video recorder.
- When the recorder is connected to a VideoMovie which incorporates a Master Edit Control system*, you can control the recorder with the VideoMovie's controls for making edits free of transition-point gaps and distortion. Refer to the VideoMovie's instruction manual for detailed operating procedures for editing.
- With this connection, you can also use the VideoMovie as a video camera for direct recording onto the recorder's tape. Put the recorder in the Record-Pause mode and operate the VideoMovie's start/stop trigger to start and pause recording. (For direct recording with a separate video camera, a camera adapter is necessary.)

*JVC dedicated models only.

Tips for obtaining better results

The quality of the edited tape may vary depending on the position of the EDIT switch. It is recommended that you first make some trial recordings.

- With the EDIT switch of the playback deck set to ON and recording deck to OFF.
- With the EDIT switch of both playback and recording decks set to ON, and
- With the EDIT switch of both decks set to OFF.

Choose the setting combination that best suits your preference.

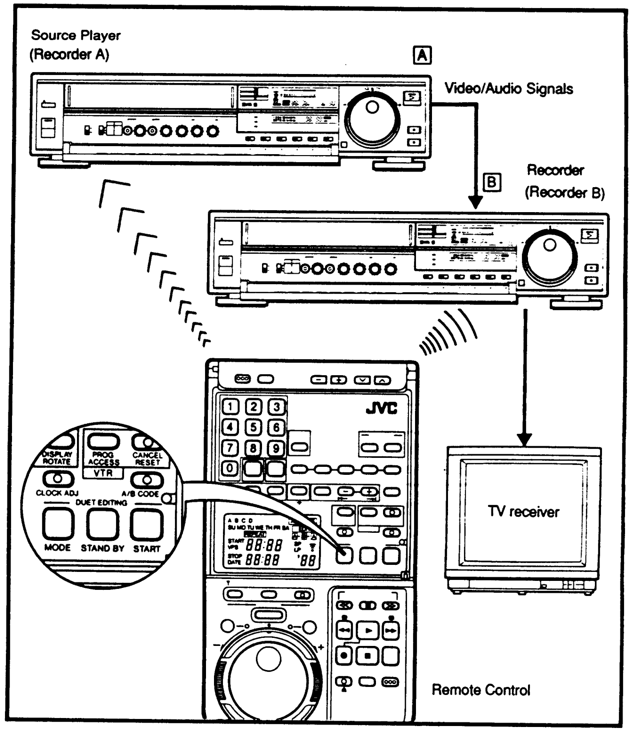
Note:
Also refer to the instruction manual of the 2nd video recorder you are using.

DUET EDITING

Designed specifically to simplify editing operations, the Duet Editing function delivers separate commands to two recorders simultaneously via a single remote control, taking advantage of the A/B code system. (JVC dedicated models only)

Preparations
- Connect two recorders as described in "RECORDING FROM AN EXTERNAL SOURCE" on the previous page.
- Set one recorder to respond to A code signals, the other, to respond to B code signals. (See page 8.)
- Place the two recorders side by side.

Notes:
- JVC video recorders with infrared remote control units which are not equipped with an A/B code select switch are designed to receive A code signals. Therefore, Duet Editing is possible with JVC decks if the HR-S5800E is set to respond to B code signals.
- It is not possible to perform Duet Editing unless the remote control's clock has been previously set.



OPERATION

Remote Control	Recorder A (Source player)	Recorder B (Recorder)
	Load a recorded tape.	Load a blank tape.
1. Press EDIT MODE. "EDIT A → B" appears on LCD.		
2. Press STAND BY.	Enters STILL mode.	Enters RECORD-PAUSE mode.
3. Search for an edit-in point on the source tape. Press II.	Functions as commanded. (In this state, only recorder A responds to the remote control's commands.)	Remains in RECORD-PAUSE mode.
4. Press START.	Enters PLAY mode.	Enters RECORD mode.
5. Press II.	Enters STILL mode.	Enters RECORD-PAUSE mode.
6. Repeat steps 3, 4 and 5 to continue editing.		

Notes:
- You can use Recorder B (the recorder set to respond to B code signals) as a source player and Recorder A as a recorder. In this case, press the A/B CODE button after step 1 to obtain "EDIT B → A" indication.
- To cancel the Duet Edit mode and return to normal remote control functions, press the EDIT MODE button so that the EDIT indication disappears.
- When the START button is pressed, the recorder takes a few seconds before actual editing starts due to the automatic backspace editing system. At the same time the START button is pressed, the player starts playback from the specified edit-in point. Therefore, it is recommended that you specify a point slightly before the intended edit-in point in step 3 for more accurate editing. This also ensures that the picture of the resulting edit will be more stable.

INSERT EDITING

Insert editing means recording a new scene into a section of pre-recorded tape so that a part of the original recording can be replaced with a new sequence without excessive picture distortion at edit-in and edit-out points. Thanks to the flying erase head, clean edits can be obtained. New video and audio signals to be inserted can come either from another video cassette recorder or the built-in tuner.

CAUTION

Since video and audio signals are recorded simultaneously, both are replaced with new recordings simultaneously. However, the normal audio soundtrack remains unchanged.

Setting options of the relevant controls

Settings Source	AV/S button, AV IN/OUT SELECT switch and SIMUL button
To insert programmes from a different tape	AV or S (with AV/S button set as required – see page 36)
To insert TV programmes from the built-in tuner	Select a channel (SIMUL button to OFF)
To insert FM simulcast programme	SIMULCAST (SIMUL button to ON)

Connection

To insert video and audio signals from another video cassette recorder, connect both recorders as described on page 36.

Procedure

1. Switch on the TV receiver.
   - Set the TV receiver in the appropriate mode.
2. Load a pre-recorded cassette.
3. Set the source as required. (See chart above.)
4. Set the Hi-Fi audio recording level. (See page 20.)
5. Play back the tape and engage the Still mode near the edit-out point (the end of the segment to be replaced).
6. Determine the edit-out point using the JOG/SHUTTLE controls. Releasing the controls engages the Still mode.
7. Press the C. RESET button.
   - The counter will be reset to "0H 00M 00S".
8. Use the JOG/SHUTTLE controls to search for the edit-in point (the beginning of the tape section to be replaced). Releasing the controls engages the Still mode.
9. Press the INSERT button.
   - This engages the Insert Standby mode in which the input signal can be monitored on the TV screen; the still picture changes into the input signal that you are going to record.
   - The input sound signal can also be monitored.
10. Operate the source equipment properly.
    - Play back on another recorder the tape programme to be inserted.
    - Select the channel to be recorded.
    - Select the channel and set the FM tuner.
11. Press the PLAY button to start insert editing.
    - Now video and audio signals will be recorded simultaneously.
    - At the counter reading of "0H 00M 00S", recording will stop automatically.
    - The tape will continue running in the Play mode.

Notes:

- Do not use the STOP button to stop insert editing. If you press the STOP button, the tape stops and the Insert Edit mode is cancelled.
- If you wish to stop insert editing before the specified edit-out point is reached, press the C. RESET button.
  Then the Play mode will be entered.
- Insert editing is also possible without determining the edit-out point. Simply start insert editing at the edit-in point and, where you wish to stop insert editing, press the PAUSE/STILL button. Since this recorder incorporates a flying erase head, even this simplified procedure makes clean edits, though there may be a slight discrepancy between the actual and intended edit points.
- The recording mode (SP or LP) is automatically determined by the previous recording on which the new segment is inserted regardless of the setting of the SP/LP button.
- If the edit start point of the new scene lies in the SP mode and the edit end point of the same scene lies in the LP mode or vice versa, the inserted picture will distort at the switching point in the recording mode.
- If there is a non-recorded section on the tape, the Insert Edit mode will be cancelled automatically and the Play mode will be engaged.
- Insert editing is not possible with non-recorded cassettes or cassettes whose safety tab has been removed.

IN CASE OF DIFFICULTY

What may initially appear to be trouble is not always a real problem. Make sure first ...

POWER AND TAPE TRANSPORT PROBLEMS

Symptoms	Check points
No power is applied to the recorder.	• Is the power cord disconnected? — Connect it.
Clock is functioning properly, but the recorder cannot be powered.	• Is the TIMER indicator lit on the FDP? — Press TIMER to disengage the Timer Recording Standby mode.
Tape does not run during recording.	• Is the PAUSE/STILL button engaged? — Press the PLAY button.
Tape stops in the Rewind or Fast-Forward mode.	• Is the C. MEMORY is pressed so that "M" appears on the FDP? — Press to make "M" disappear.
Tape will not rewind or fast forward.	• Is the tape already fully rewound or fast forwarded? — Check the cassette.

RECORDING PROBLEMS

Symptoms	Check points
Recording cannot be started.	• Is a cassette loaded? • Is the safety tab on the cassette removed? — Reseal the slot with cellophane tape.
Camera recording is not possible.	• Are the camera and the camera adapter correctly connected? • Is the power switch of the camera adapter set to ON? • Does the channel display indicate "AU"? — Turn the JOG dial to obtain "AU" on the FDP. (First press CH/SET.SELECT when you use the remote control.)
Simulcast recording is not possible.	• Has the SIMUL button been pressed? — Press it so "SC" appears on the FDP. • Is an audio source correctly connected to the AUDIO IN connectors? — Check connections.
Timer recording is not possible.	• Have you set the clock correctly and programmed the timer correctly? — Check once again. • Is the TIMER indicator lit on the FDP? — Press TIMER.

PLAYBACK PROBLEMS

Symptoms	Check points
Playback picture does not appear while the tape is running	• Is the TV receiver's channel selector set to the correct video channel? — Set it to the RF converter channel. (See page 12.) • If you are using AV connection, is the television engaged in the AV mode? — Operate the television's mode.
Playback is repeated.	• Is the REPEAT switch set to either "FULL" or "INDEX"? — Set it to "OFF".
Noise appears during playback.	• Is the automatic tracking mode engaged? — Engage the manual tracking mode. (See page 23.)
Playback picture is blurred or interrupted while TV broadcasts are clear.	• Video heads may be dirty. — Head cleaning is necessary. Consult your JVC dealer.

HI-FI AUDIO PROBLEMS

Symptoms	Check points
TV sound cannot be recorded on hi-fi audio track.	• Has the SIMUL button been pressed? — Press it again so "SC" no longer appears on the FDP.
Soundtrack on the hi-fi audio track cannot be reproduced.	• Is the NORM indicator lit? — Press the MIX button for Hi-Fi L and R to light as required.

OTHERS

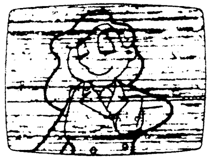
Symptoms	Check points
Whistling or howling is heard from TV.	• Move camera or microphone away from TV or reduce TV sound volume.
Some channels are skipped over when selecting a channel.	• Those channels are preset to be skipped over. If you need them, restore them. (See page 18.)
Channel cannot be switched.	• Is recording in progress? — Press PAUSE/STILL, select a desired channel and press PLAY .
The recorder cannot be operated with the remote control.	• Batteries are discharged. — Replace with new one. • Is the A/B CODE indicator showing the proper code for the recorder being operated? — Press the A/B CODE button to switch the remote control to the correct setting.
Index Search does not function properly.	• Adjacent index codes may be too close to each other. — Erase some index codes and mark new ones, if necessary, with sufficient distance between two index codes.

This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the power off and unplug the power cord. Then plug it in again and switch on. Take out the cassette. After checking the cassette, operate the unit as usual.

HEAD CLEANING

- Picture playback may become blurred or interrupted while the TV programme received is clear. This does not mean that the recorded programme has been erased.
- Dirt accumulated on the video heads after long periods of use causes such problems. In this case, head cleaning requiring highly technical care is necessary.

For head cleaning, consult the nearest JVC dealer.



SPECIFICATIONS

GENERAL

Power requirement	AC 220 V∼, 50/60 Hz
Power consumption	40 W
Temperature	5°C to 40°C (Operating) –20°C to 60°C (Storage)
Operating position	Horizontal only
Dimensions (WxHxD)	435 x 102 x 390 mm
Weight	7.0 kg
Format	S-VHS/VHS PAL standard
Tape width	12.65 mm
Tape speed (SP)	23.39 mm/sec
(LP)	11.70 mm/sec
Maximum recording time (SP)	240 min. with E-240 video cassette
(LP)	480 min. with E-240 video cassette

VIDEO

Signal system	PAL colour and separated Y/C signals, 625 lines/50 fields
Recording system	Rotary two-head helical scan system with slant double-azimuth combination video heads
Input	0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output	1.0 Vp-p, 75 ohms, unbalanced
Signal-to-noise ratio	43 dB (Rohde & Schwarz noise meter) with PICTURE SHARPNESS control at centre position
Horizontal resolution	More than 400 lines (S-VHS)/ 250 lines (VHS) with PICTURE SHARPNESS control at centre position

AUDIO

Input	Mic:-67 dBs, high impedance, unbalanced AUDIO IN connector (RCA x 2): -8 dBs, more than 50 k-ohms, unbalanced AUDIO/VIDEO socket (21-pin Peri connector):-3.8 dBs, (CENELEC standard), 10 k-ohms, unbalanced
Output	AUDIO/VIDEO socket (21-pin Peri connector):-3.8 dBs, (CENELEC standard), high-impedance load AUDIO OUT connector (RCA x 2): -6 dBs, high-impedance load less than 1 k-ohm, unbalanced (100 k-ohms, load)

NORMAL AUDIO

Recording system	Longitudinal track
No. of audio channels	1 (monaural)
Frequency range	70 Hz to 10,000 Hz

HI-Fi AUDIO-

Recording system	Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of audio channels	2 Hi-Fi audio channels
Frequency response	20 Hz to 20,000 Hz
Dynamic range	More than 90 dB
Wow and flutter	Less than 0.005% WRMS

TUNER

Tuning system	Frequency synthesized tuner
TV channel storage capacity	48 positions (+ AUX position "AU")
Channel coverage	VHF 47 – 111 MHz 111 – 300 MHz 302 – 470 MHz UHF 470 – 862 MHz
Aerial output	UHF channel 36 (adjustable 32 – 40)

TIMER

Clock reference	Quartz-crystal
Programme capacity	1-year/8-programme timer
Memory back-up time	60 min.

ACCESSORIES

Provided accessories	Aerial cable, Infrared remote control unit, "R6" battery x 4, Audio cable (RCA-RCA), S-Video cable (4-pin/4-pin), S-VHS cassette tape (SE-180)
Optional accessories	VPS adapter VU-V110E VPV adapter VU-V120E VPS/VPV adapter VU-V100E VPT adapter VU-V140E VPS/VPT adapter VU-V150E RGB signal converter KM-V7EG

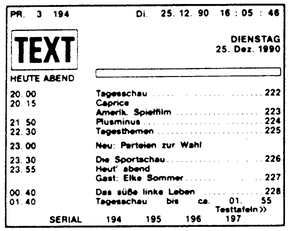
Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

TELETEXT COMPATIBILITY

Teletext services are becoming popular and a vast number of teletext pages are now available for a variety of information. This recorder is ready to take advantage of these services, not only for simple viewing but also for programming the recorder's built-in timer in an extremely easy way. All you need to do is connect the optional VPT or VPV adapter to the rear of the recorder. Then the recorder's remote control exhibits its full capability with all the dual or triple-function control keys working as intended. The following information shows examples of using the optional VPT adapter.

TELETEXT

- View broadcast teletext pages.
- Several page access modes are available for quick and convenient viewing.
- Programme the timer using TV schedule pages.



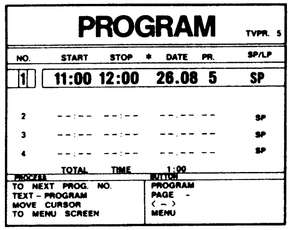
```
PR. 3 194                  Di. 25. 12. 90  16 : 05 : 46

TEXT                                       DIENSTAG
                                        25. Dez. 1990

HEUTE ABEND
20. 00          Tagesschau . . . . . . . . . . . 222
20. 15          Caprice
                Amerik. Spielfilm . . . . . . .  223
21 50           Plusminus . . . . . . . . . . .  224
22. 30          Tagesthemen . . . . . . . . . .  225
23. 00          Neu: Parteien zur Wahl
23. 30          Die Sportschau . . . . . . . . . 226
23. 55          Heut' abend
                Gast: Elke Sommer . . . . . . .  227
00. 40          Das süße linke Leben . . . . . . 228
01. 40          Tagesschau   bis   ca.   01.   55
                                    Testtafeln >>
        SERIAL    194     195     196     197
```

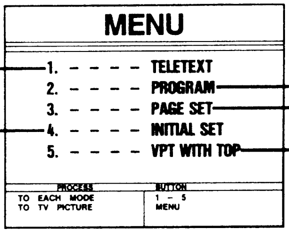
PROGRAM

- Check the timer recording data on the colour display.
- Programme the timer manually with 10-key input.



```
                 PROGRAM               TVPR. 5
NO.    START   STOP  *  DATE   PR.       SP/LP
1     11:00  12:00    26.08  5           SP

2     --:--  --:--    --.--  --          SP
3     --:--  --:--    --.--  --          SP
4     --:--  --:--    --.--  --          SP
       TOTAL   TIME     1:00
PROCESS                    BUTTON
TO NEXT PROG. NO.          PROGRAM
TEXT - PROGRAM             PAGE -
MOVE CURSOR                < - >
TO MENU SCREEN             MENU
```



```
                MENU

   1. - - - -  TELETEXT
   2. - - - -  PROGRAM
   3. - - - -  PAGE SET
   4. - - - -  INITIAL SET
   5. - - - -  VPT WITH TOP

      PROCESS             BUTTON
TO EACH MODE              1 - 5
TO TV PICTURE             MENU
```

PAGE SET

- Preset teletext pages so that you can quickly access your favourite or frequently-referred-to pages.
- Four pages can be preset for each of the keys, 0 to 9, totalling 40 pages.

INITIAL SET

LANGUAGE

- Select one of four languages (English, German, Italian or Swedish) for on-screen messages.

CLOCK ADJUST

- Set the VCR's clock manually with 10-key input.
- Automatic clock setting by reading time information from teletext pages.

VPT WITH TOP

- TOP automatic teletext timer programming.
  - * "5. - - - - VPT WITH TOP" appears only when the VCR's tuner is tuned to a station which is transmitting TOP broadcasts. (Applicable only in certain areas.)

SECTION 1
DISASSEMBLY AND MECHANISM ADJUSTMENTS

1.1 DISASSEMBLY

1.1.1 Top cover

1. Refer to Fig. 1-1-1 and set for the EJECT (Stop) mode and disconnect VCR from AC power.
2. Take out 4 screws Ⓐ. To remove the top cover, slide it in the direction of the arrow and lift it away.

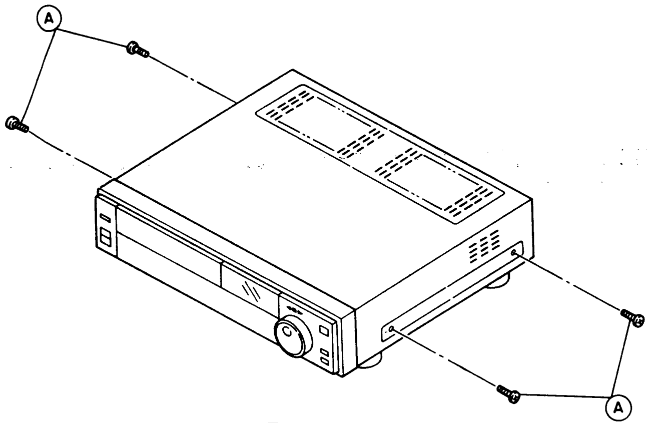


Fig. 1-1-1

1.1.2 Front panel assembly

1. Remove the top cover.
2. Carefully disengage 3 tabs Ⓑ of the front panel assembly from the upper side of the chassis.
3. Refer to Fig. 1-1-2 and pull the front panel assembly forward you to disengage 3 tabs Ⓒ of the front panel assembly from the bottom side of the chassis, then remove the front panel assembly.

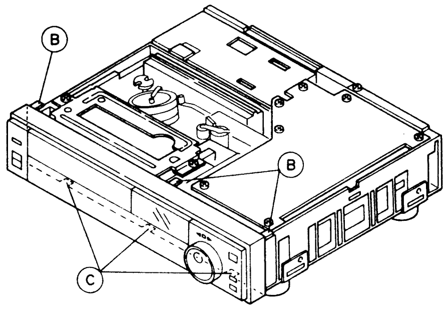


Fig. 1-1-2

1.1.3 Bottom cover

1. Remove the top cover.
2. Refer to Fig. 1-1-3 and take out 5 screws Ⓓ and 4 screws Ⓔ from the bottom of the chassis.

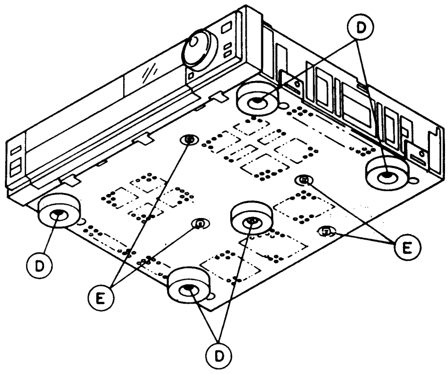


Fig. 1-1-3

1.1.4 VIDEO I board assembly

1. Remove the top cover.
2. Refer to Fig. 1-1-4 and take out 7 screws Ⓕ and 4 screw Ⓖ from main board assembly.
3. Remove the video I board assembly in the upward direction.

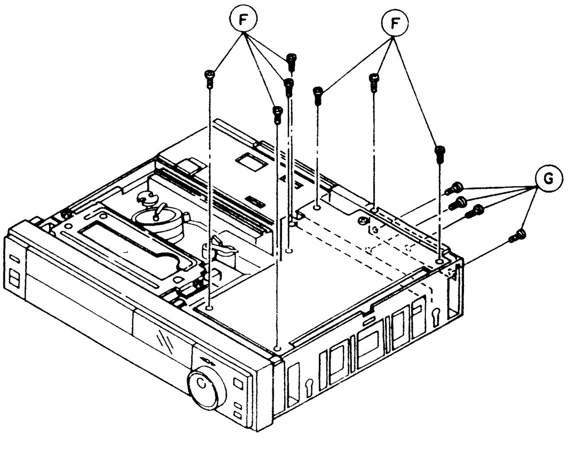


Fig. 1-1-4

1.1.5 Cassette housing

1. Remove the top cover.
2. Refer to Figs. 1-1-5 and 1-1-6.
   Take out 4 screws Ⓗ that secure the cassette housing.
3. Disengage 3 tabs Ⓚ of the front panel and pull the front panel forward where it does not interfere with removing the cassette housing.
4. Remove the cassette housing in the upward direction.

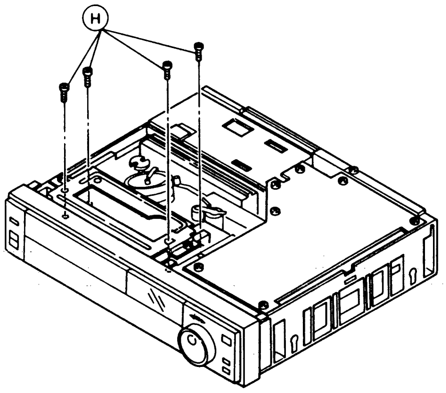


Fig. 1-1-5

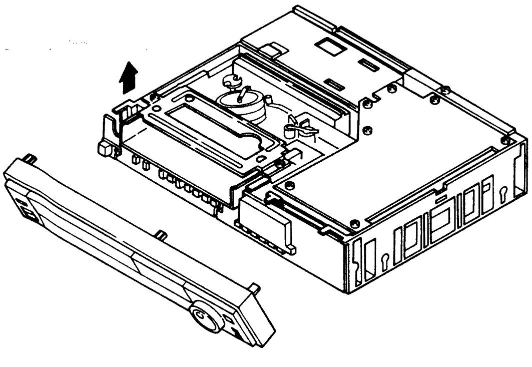


Fig. 1-1-6

1.1.6 Cassette housing installation

1. On the main deck, observe the positional relationships of the parts indicated in Fig. 1-1-7.
   If necessary, turn the loading motor by hand to obtain these positions.

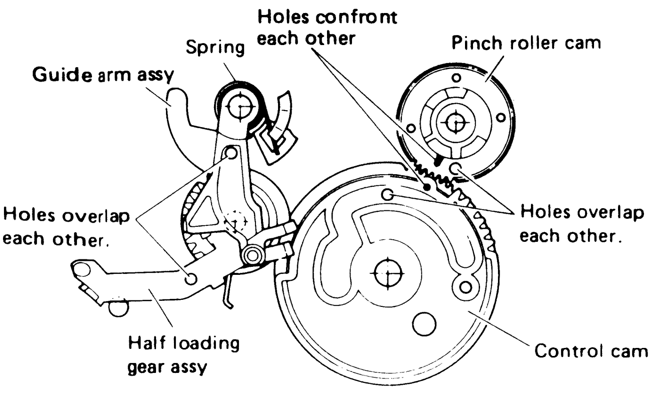

Holes confront each other
Spring
Pinch roller cam
Guide arm assy
Holes overlap each other.
Holes overlap each other.
Half loading gear assy
Control cam

Fig. 1-1-7

2. Refer to Fig. 1-1-8 and confirm that the clutch is engaged.
   If necessary, press the lever indicated by the arrow to where the clutch is locked.

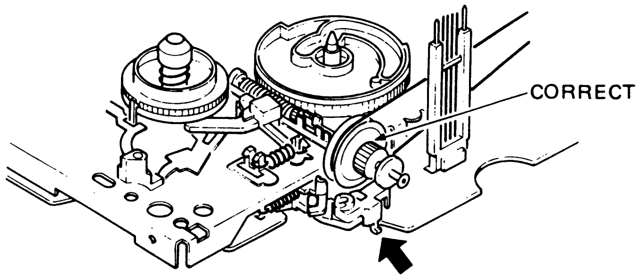


Fig. 1-1-8

3. Check that the cassette housing is in the eject state (internal holder of the cassette housing is locked in raised position).
   Set the cassette housing into place and secure with 4 screws.
4. Install the front panel as shown in Fig. 1-1-9 and re-engage the tabs. Supply power and use a spare cassette to check for normal loading and eject operations.

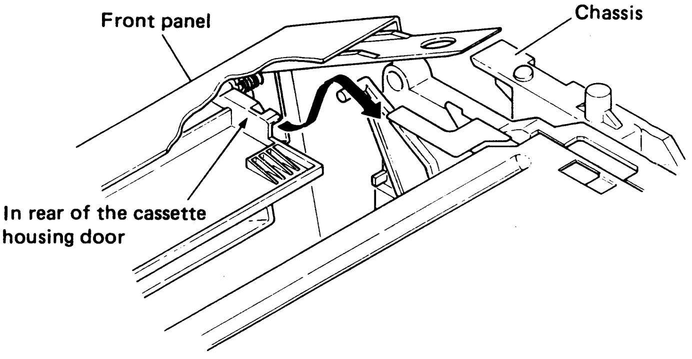

Front panel
Chassis
In rear of the cassette housing door

Fig. 1-1-9

5. Disconnect VCR from power, then reinstall the main board assembly and top cover.

1.1.7 Main-deck

1. Remove the top cover, front panel assembly and cassette housing assembly.
2. Refer to Fig. 1-1-10 and take out 3 screws Ⓛ from the main-deck assembly.
3. Remove the main-deck assembly in the upward direction.

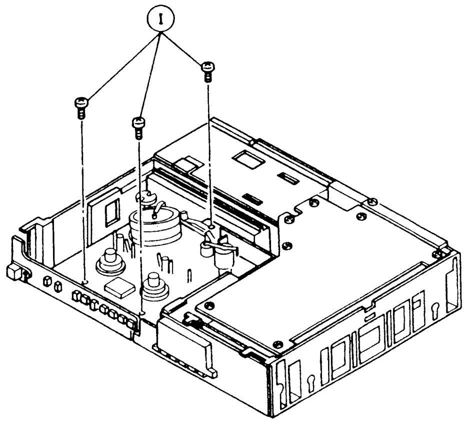


Fig. 1-1-10

1.2 MECHANISM ADJUSTMENTS

1.2.1 Precautions

1. Disconnect mainframe from AC power before soldering.
2. Avoid imparting stress to wires when disengaging connectors.
3. Determine and correct the cause of difficulty before proceeding to adjustments. Do not disturb settings unnecessarily.
4. Use care not to damage tabs, claws, etc. during repairs.
5. Install the cassette housing assembly only when the mechanism is in the Eject or Stop mode position. In the Eject mode, the internal holder of the housing is fully raised. This is fully lowered in the Stop mode.
6. When installing the front panel assembly, be sure to engage the housing door with the door lever of the cassette housing assembly. If this step is omitted, the door will not open at Eject and the cassette cannot be removed.

1.2.2 Check without cassette housing

Mechanism operations can be observed easily by removing the cassette housing assembly. Note the following.

1. Disable the photo transistor sensor (END SENSOR) on the main-deck by applying an opaque cover.
2. Connect pins 2 and 3 of A/S/M board connector CN601.
3. Select the desired modes with the operation buttons. However, notice that without tape, setting for the reverse direction modes produces the Stop mode after a few seconds due to absence of the reel sensor output.

1.2.3 Manually removing cassette tape

In event of electrical system failure that prevents the tape from being unloaded, the tape can be removed manually by the following procedure. Refer to Figs. 1-3-1, 1-3-2 and 1-3-3.

1. Disconnect power cord from AC outlet.
2. Turn the loading motor by hand so that the control cam rotates clockwise. This retracts the pole base assembly to the unloading position.
3. Continue turning to where the guide arm and half loading gear assemblies shift to beneath the cassette.
4. Turn the clutch assembly at the rear of the deck to absorb slack tape within the cassette.
5. Again turn the loading motor in the same direction to raise the cassette and remove it.

1.2.4 Test equipment

The following special tools and fixtures are required for mechanism adjustment.

1. Alignment tapes : MH-2 (SP) and MH-2L (LP)
   Stairstep signal is employed for interchangeability checks and adjustments.
2. Torque gauge : PUJ48075-2
   Measures tape take-up torque.
3. Back tension cassette gauge : PUJ48076-2
   Measures tape tension at the supply side.
4. A/C head positioning tool : PUJ47351-2
   Shifts the head base for adjusting the control head position.
5. Roller driver : PTU94002
   Turns the guide roller for adjusting FM linearity.
6. Presetting unit : PTU94008
   Use for LP auto tracking preset adjustment.

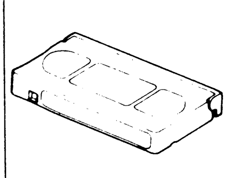
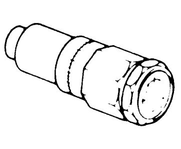
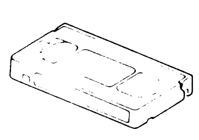
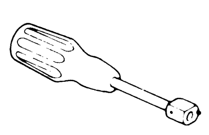
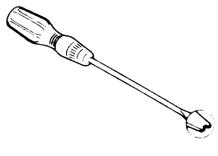
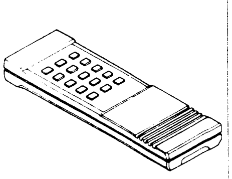
1 Alignment tape	2 Torque gauge	3 Back tension cassette gauge	4 A/C head positioning tool	5 Roller driver	6 Presetting unit
					

Fig. 1-2-4 Test equipment

1.3 MAIN MECHANISM PARTS

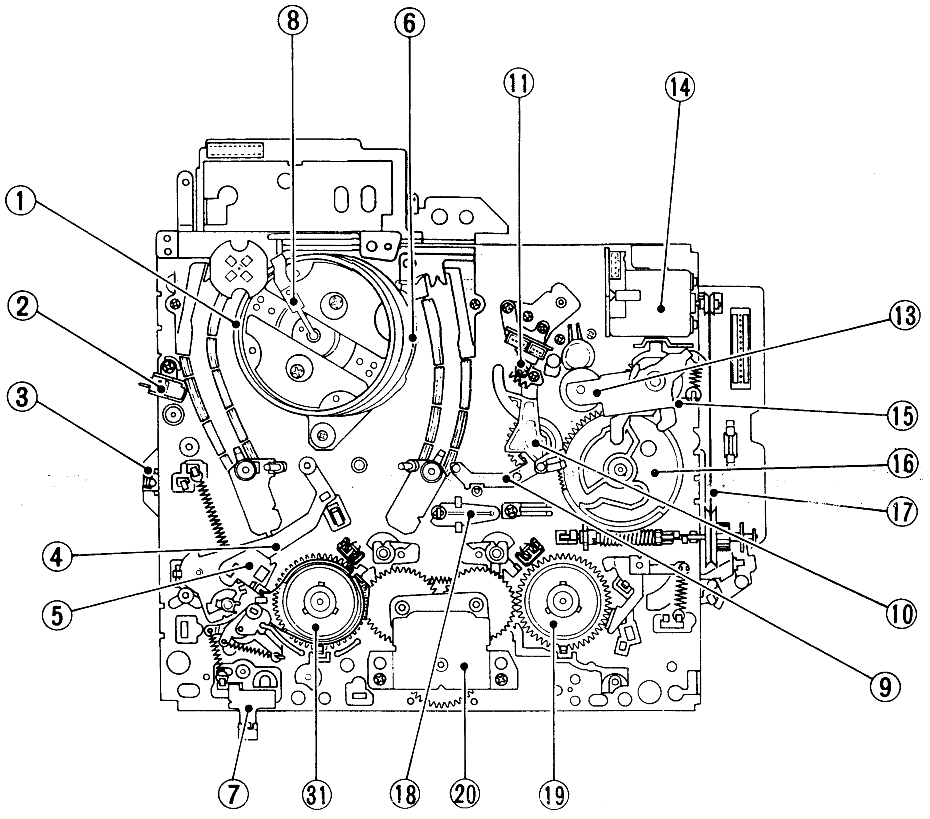

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Fig. 1-3-1 Top view of main-deck

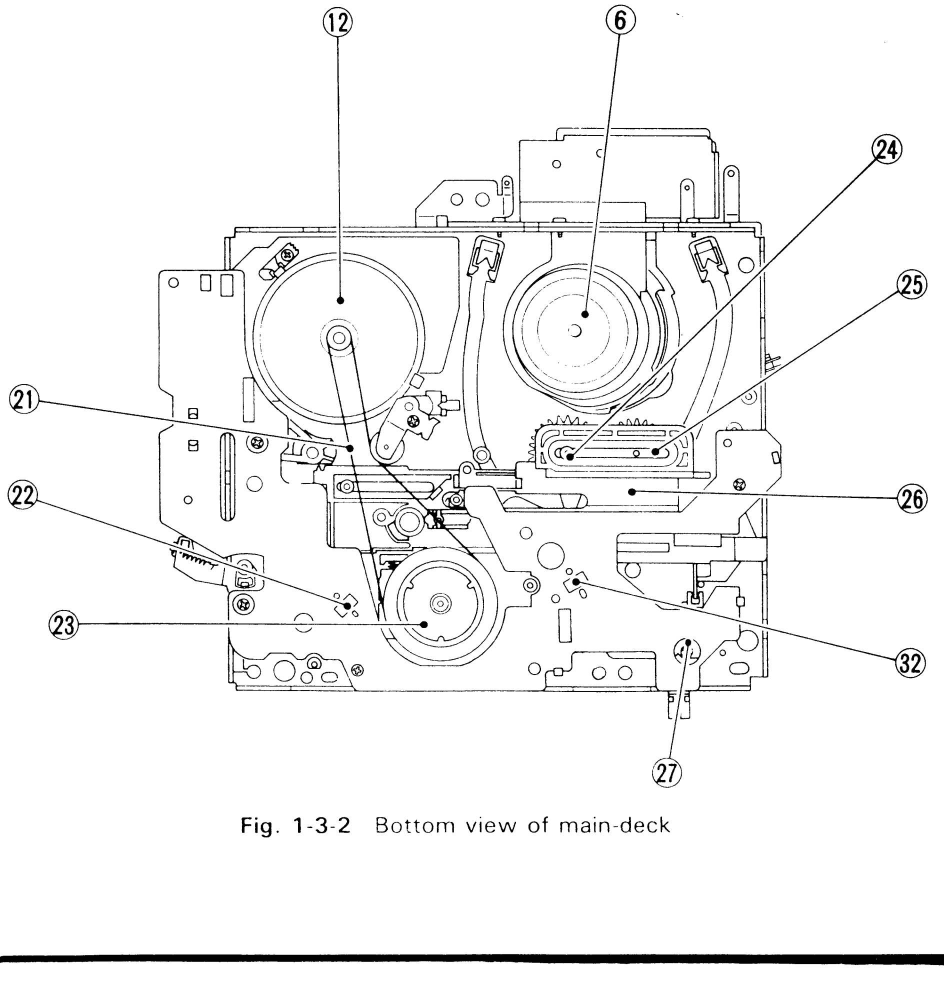
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Fig. 1-3-2 Bottom view of main-deck

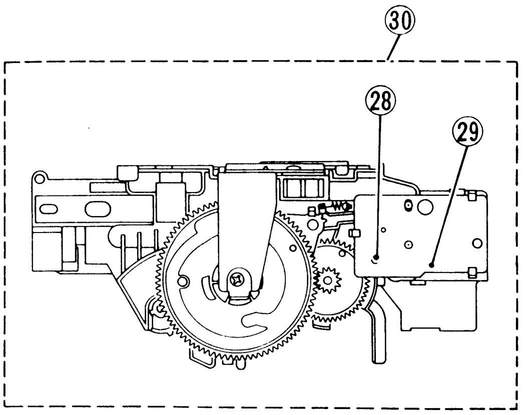


Fig. 1-3-3 Side view of cassette housing

A. Cleaning

Periodic cleaning of the tape transport system is desirable, but ordinarily not feasible in practice. Therefore, perform cleaning when a set is brought in for repairs or maintenance. Contamination of the video heads, tape guides and brushes can detract from playback picture quality and in extreme cases, even damage the tape. For cleaning, use a fine-mesh cotton cloth (about the texture of a white dress-shirt) moistened in alcohol.

- To clean the video heads, press the moistened cloth gently against the upper drum with fingertip and turn the drum by hand.
- Do not use a vertical stroke, as this may damage the heads.

B. Lubrication

Oil and grease do not normally require periodic replenshing. Apply only when replacing lubricated parts (also clean and replace lubrication of mating parts if soiled).

For parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly.

Before oiling, clean with alcohol.
Apply one or two drops of oil. Avoid excess oil.

1. Table 1-1 indicates the oil and grease used in this set. Use these or recommended locally available equivalents.

No.	Parts No.	Category
1	COSMO-HV56	Oil
2	KANTO-G-31KAV	Grease

Table 1-1

2. Grease is not required for a replacement cassette housing assembly, as this has been applied at the factory.

Notes: *Stir grease that has been stored for an extended period.*

C. Main mechanical parts

See Figs. 1-3-1, 1-3-2 and 1-3-3.

No.	Symbol	Parts Name	See Section
1	M32A	Upper drum assy	
2	M44	Full erase head	
3	51Q1	End sensor	
4	M41	Tension arm assy	1.5.4
5	M42	Tension band assy	1.5.4
6	M32C	Lower drum motor assy	1.5.2
7	M461	REC safety switch	
8	M32D	Brush assy	
9	M449	Half loading gear assy	1.5.5
10	M447	Guide-arm assy	1.5.5
11	M48	A/C head	1.5.3
12	M422	Capstan motor	
13	M442	Pinch roller arm assy	
14	M434	Mode motor assy	
15	M446	Pinch roller cam	1.5.5
16	M438	Control cam	1.5.5
17	M437	Loading belt	
18	M460	LED holder (D1)	
19	M430	Reel disk (take-up)	
20	M424	Idler gear assy	
21	M429	Timing belt	
22	51PS1	Take up reel sensor (PS1)	
23	M426	Clutch assy	1.5.6
24	M433	Take up loading arm assy	1.5.7
25	M432	Supply loading arm assy	1.5.7
26	M439	Plate assy	1.5.7
27	M462	Slide encorder (S3)	
28	56PS3	Cassette sensor (PS3)	
29	56Q2	Start sensor (Q2)	
30	M35	Cassette housing assy	
31	M470	Reel disk (supply)	
32	51PS2	Supply reel sensor (PS2)	

- Symbol interpretation example

M32A
Ref. No.
Exploded view symbol

56 Q2
Ref. No.
Board No.

1.4 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear in the course of usage. Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced when required.

1.4.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought in for service and the maintenance work performed if necessary.

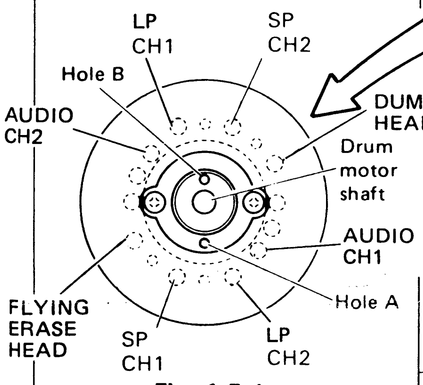
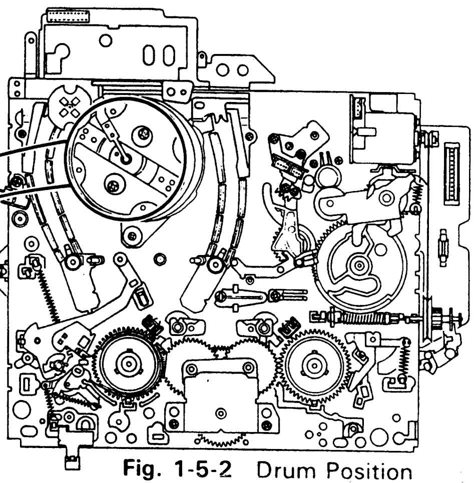
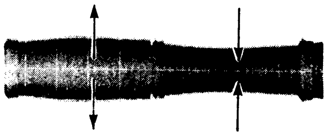
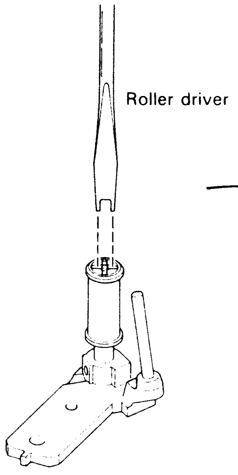
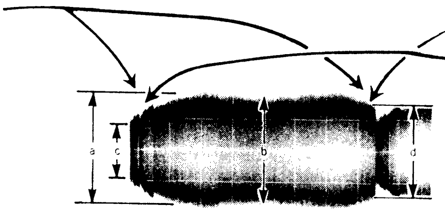
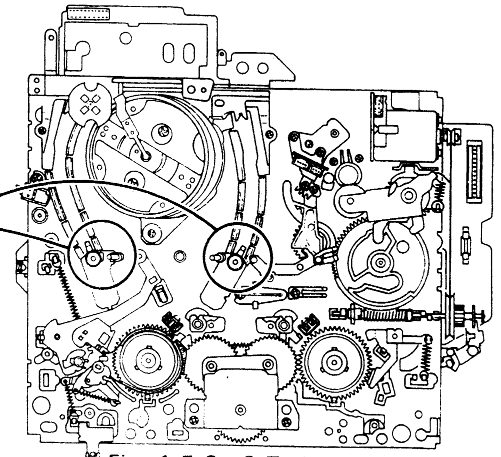
Also note that rubber parts may deform in time, even if the set is not used.

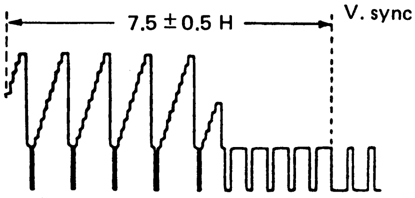
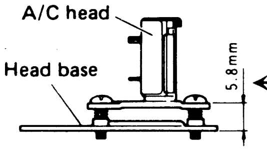
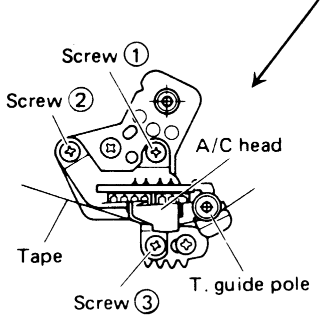
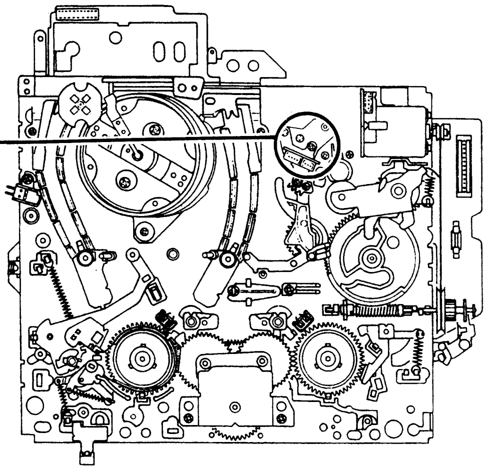
System	No.	Parts Name	Symbol No.	Periodic servicing schedule (operation hours)								
				250	500	750	1000	1250	1500	1750	2000	3000
Tape Transport system	1	Upper drum assy	M32A	★	★	☆	●	★	★	☆	●	●
	11	A/C head	M48	★	★	★	★	★	★	★	☆	●
	13	Pinch roller arm assy	M442	★	★	★	★	★	★	★	★	●
	2	Full erase head	M44	★	★	★	★	★	★	★	★	●
	4	Tension arm assy	M41	★	★	★	★	★	★	★	★	★
	6	Lower drum motor assy	M32C									
	12	Capstan (shaft) motor	M422									
	9	Half loading gear assy	M449									
	10	Guide arm assy	M447									
Drive system	12	Capstan motor	M422								●	
	17	Loading Belt	M437				○				●	○
	21	Timing Belt	M429				○				●	○
	19	Take-up reel disk	M430				△				△	●
	31	Supply reel disk	M470				△				△	●
	23	Clutch unit	M426						○		○	○
	14	Mode motor assy	M434									●
Others	5	Tension band	M42				○				○	○
	8	Brush	M32D				○				○	○

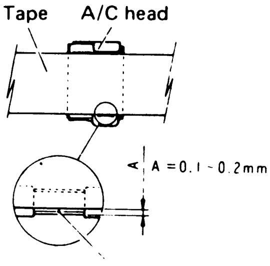
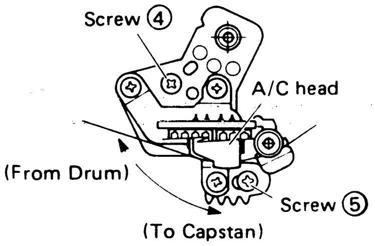
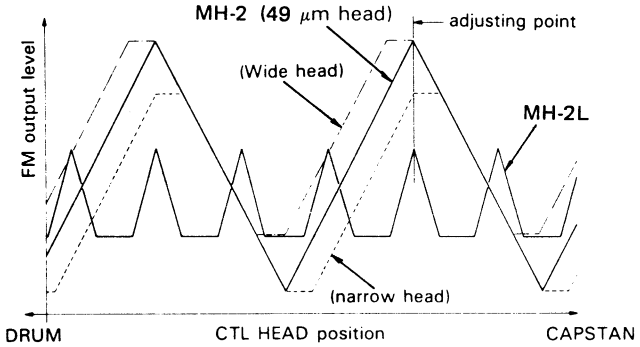
★ : Cleaning
☆ : Cleaning (or Replacement if necessary)
△ : Lubrication
▲ : Lubrication (or Replacement if necessary)
● : Replacement
○ : Inspection (or Replacement if necessary)

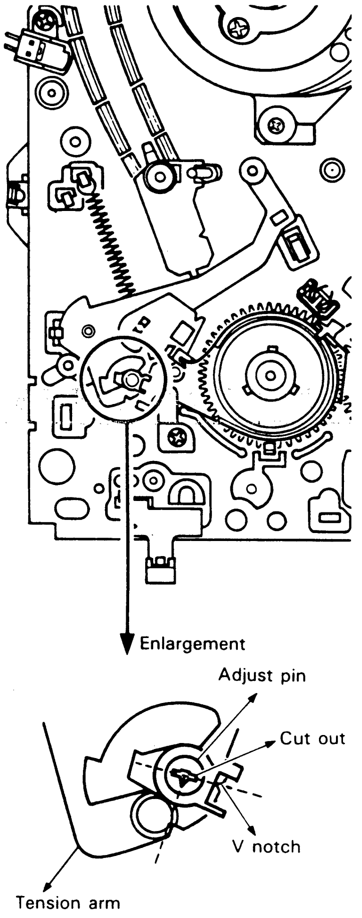
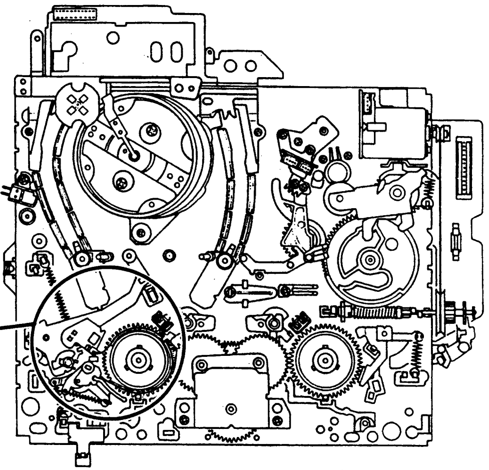
Table 1-4-1 Approximate maintenance schedule

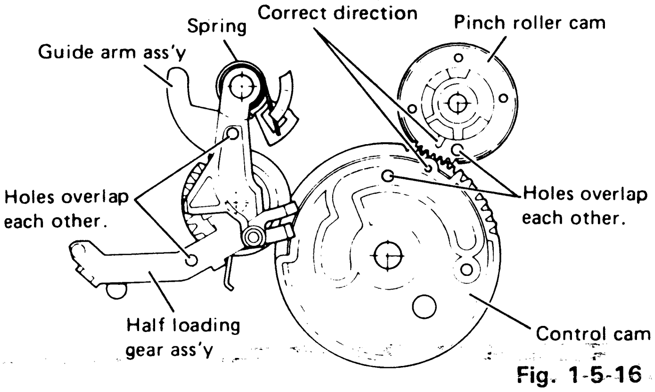
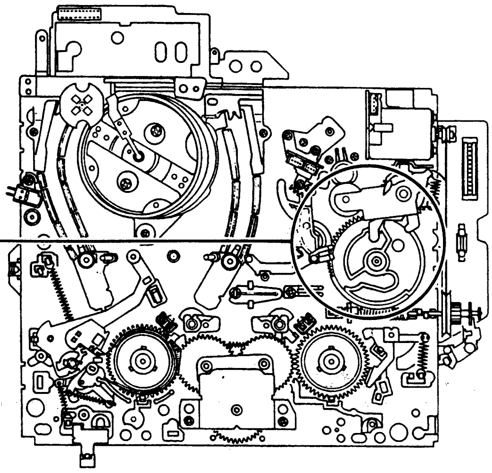
1.5 MAIN PARTS REMOVAL AND REPLACEMENT

No.	Item	Checkpoints	Adjustment and Checks
1	Upper drum assembly •Symptoms: FM signal absent, intermittent or weak on one channel; large difference in channel output levels •Cause: Worn or damaged video heads, poor response, etc.  LP CH1 SP CH2 Hole B AUDIO CH2 DUMMY HEAD Drum motor shaft AUDIO CH1 Hole A FLYING ERASE HEAD SP CH1 LP CH2 **Fig. 1-5-1** DRUM TOP VIEW	 **Fig. 1-5-2** Drum Position	
		Mounting direction See Fig. 1-5-1. (Symptom: no picture)	After replacing, observe that upper drum hole A is opposite the motor axis from lower drum hole B.
		Axis wobble See Fig. 1-5-2. (Symptom: jitter, poor FM linearity) **PB FM: VIDEO UNIT board TP406** **FF: Video I board TP411**	Record and playback in **LP mode.** Confirm absence of large difference between channels. (Fig. 1-5-3)  **Fig. 1-5-3** Axis wobble
	 **Fig. 1-5-4** S.T. Pole base	FM linearity check See Fig. 1-5-5. (Symptom: vertical sync absent, picture noise) **PB FM: Video UNIT board TP406** **FF: Video I board TP411**  **Fig. 1-5-5** FM linearity $\frac{b}{a} \geqq 0.7$, $\frac{c}{a} \geqq 0.65$, $\frac{d}{a} \geqq 0.65$	 **Fig. 1-5-6** S.T. Pole base position 1) Play stairstep signal of the **MH-2** Alignment Tape. Confirm absence of obvious FM waveform loss and that operating the Tracking yields the optimum point. 2) Refer to Fig. 1-5-4, adjust for loss at the left edge (drum entry) of the FM waveform by turning the guide roller of the supply pole base. Similarly, adjust for loss at the right edge (drum exit) by turning the guide roller of the take up pole base. Note: ***If FM loss occurs on both channels and cannot be corrected by adjusting the guide rollers, the lower drum needs replacement.***

No.	Item	Checkpoints	Adjustment and Checks
	PB switching point •Symptom: switching noise at picture bottom.	VIDEO OUT or TP110 (Video I board)  **Fig. 1-5-7** PB Switching Point	1) Connect VCR to AC. Turn power on. 2) Connect an oscilloscope to VIDEO OUT or TP110. 3) Insert the MH-2 alignment tape to the cassette housing. Play back the stairstep segment of MH-2 alignment tape. 4) Trigger the oscilloscope externally (– slope) with the signal from TP411 (DRUM FF) of the Video I board. 5) Adjust R427 to position the trigger point 6.5 H ±0.5 H from V. sync as shown in Fig. 1-5-7.
2	Lower drum assembly •Symptoms: Poor FM linearity, noisy rotation, jitter •Cause: Lead and bearing wear	Check FM linearity and switching point.	See above upper drum assembly items.
		Check control head phase (X value) Symptom: tracking error PB FM: VIDEO UNIT board TP406 FF: VIDEO I board TP411	1) Play stairstep signals of MH-2 and MH-2L Alignment Tapes. Engage the Tracking Preset mode by pressing the + and – buttons simultaneously in the onscreen mode. Confirm that the same maximum FM waveform level is obtained as when the tracking is adjusted manually. 2) Refer to the A/C head adjustments.
3	**A/C head**  **Fig. 1-5-8** Temporary height  Screw ① Screw ② A/C head Tape T. guide pole Screw ③ **Fig. 1-5-9** Inclination/Azimuth/ Height adj.		 Fig. 1-5-10 A/C HEAD position
		Temporarily set height as indicated in Fig. 1-5-8.	Set the height as indicated in Fig. 1-5-8 to facilitate tape transport checks and adjustments.
		Tilt (forward inclination) See Fig. 1-5-9. (Symptom: audio level varies greatly.)	1) Run tape, turn screw ① counterclockwise to where slight curling of the tape occurs at the lower flange of the take-up guide roller. 2) Then slowly turn the screw clockwise to where the curling ceases.
		Azimuth See Fig. 1-5-9. (Symptoms: audio low level or noisy) Audio output: AUDIO OUT	1) Set front panel AUDIO MONITOR selector to Normal and play stairstep signal (with audio 6 kHz) of the MH-2 Alignment Tape. Observe audio output signal with oscilloscope. 2) Turn screw ② and adjust for maximum audio output level.

No.	Item	Checkpoints	Adjustment and Checks
	 **Fig. 1-5-11** Height Adj	Height See Figs. 1-5-9 and 1-5-11. (Symptom: low audio and control signal levels)	1) Run tape and observe the control head area. 2) Turn screws ①, ② and ③ by small and equal amounts until 0.1 to 0.2 mm of the head core bottom can be seen. Note: ***If difficult to observe, play stairstep signal of MH-2 Alignment Tape and adjust for maximum audio output and control pulse level.***
		FM linearity	Refer to upper drum assembly items. If adjustment is major, again check the azimuth.
	 Screw ④ A/C head (From Drum) Screw ⑤ (To Capstan) **Fig. 1-5-12** CTL head phase  Fig. 1-5-13 CTL head phase Note: *Trigger the oscilloscope externally signal from TP411 (DRUM FF). Use (+) trigger for MH-2 and MH-2L alignment tape. Narrow head is employed for this model.*	Control head phase See Fig. 1-5-12 PB FM: Video UNIT board TP406 FF: Video I board TP411	1) Play stairstep signal of MH-2 Alignment Tape and observe the FM waveform. Set for Tracking Preset by pressing the + and − buttons simultaneously in the onscreen mode. 2) Loosen screws ④ and ⑤. Set the A/C head positioning tool on screw ④, with the stud inserted into the nearby oblong hole. 3) Turn the tool first to position the A/C head fully toward the capstan. Then gradually return it toward the drum and stop at the position of maximum FM waveform output level as shown in Fig. 1-5-13. 4) Tighten screw ⑤ . Remove the tool and tighten screw ④. 5) Play stairstep signal of MH-2L Alignment Tape and confirm maximum FM waveform output level as shown in Fig. 1-5-13. 6) If not maximum, slightly loosen screws ④ and ⑤. Use the tool and adjust the head position for the nearest maximum point. Then tighten screws ④ and ⑤.
		LP auto tracking adjustment	1) Terminate the video output at 75 ohms with a monitor-TV and connect oscilloscope to PB FM (TP6). 2) Set MH-2L Alignment Tape into the cassette housing and play the stairstep signal. 3) Confirm that the A/V digital tracking LED changes from flashing to lighted. 4) Press button "D" of the preset unit (PTU 94008) to extinguish the A/V digital tracking LED. 5) Again press button "D" to enter the LP interchangeability adjust mode. Confirm that the A/V digital tracking LED changes from flashing to extinguished. Press the stop button. Note: *If the Alignment Tape ejects automatically, repeat the control head phase adjustment.*

No.	Item	Checkpoints	Adjustment and Checks
4	Tension arm assembly Tension band assembly  Enlargement Adjust pin Cut out V notch Tension arm **Fig. 1-5-14** Tension arm assy	Tension pole position See Fig. 1-5-14. (Symptom: poor FM waveform response)	 **Fig. 1-5-15** Tension arm position **Note:** ***The adjust pin is eccentric.*** 1) Set mechanism to the eject mode (Cassette housing holder fully raised) 2) As shown in the Fig. 1-5-14 turn the adjust pin to where the cut out forms a straight line with the V notch.
		Back tension (Symptom: skew)	1) When the tension pole position is correctly adjusted, the back tension will assume the correct value. 2) Use the Back Tension Cassette Gauge and set for the playback mode. Confirm reading of 35 to 48. 3) Changing the tension pole position in order to vary the back tension will cause adverse effects elsewhere.

No.	Item	Checkpoints	Adjustment and Checks
5	Pinch roller cam Control cam Half loading gear assembly Guide arm assembly  Spring Correct direction Pinch roller cam Guide arm ass'y Holes overlap each other. Holes overlap each other. Half loading gear ass'y Control cam Fig. 1-5-16 Control/Pinch roller cam	Important: Do not remove or disturb parts other than those mentioned. See Fig. 1-5-16.	Set mechanism to Eject mode internal holder of the cassette housing is locked in raised) position.  Fig. 1-5-17 Control cam position 1) When installing the pinch roller cam, overlap the largest hole of the gear portion with the hole of the deck. 2) Set the control cam on the deck with the hole of the groove overlapped with the hole of the deck. Observe that the small hole of the control cam and the ridge of the pinch roller cam are aligned. (If the control cam does not fit readily, shift the rear plate assembly within the range of play.) 3) Install the half loading gear assembly with the hole overlapped with the hole of the deck. Secure with E-ring. 4) Install the guide assembly over the spring and with the hole overlapping that of the deck. Engage the spring correctly.
		Cassette housing assembly	Install the cassette housing assembly with the mechanism in the Eject mode. Also observe that the inner holder of the housing is raised and locked.
6	Clutch assembly	Take-up torque (Symptom: inadequate take-up torque)	1) Remove cassette housing and set for playback mode (see Section 1.2). 2) Set torque gauge on the take-up reel disk. Gradually relax your grip on the gauge and read the needle indication at the point the gauge begins to rotate with the disk. Confirm indication of 60 to 100.

No.	Item	Checkpoints	Adjustment and Checks
7	Take-up loading arm assembly Supply loading arm assembly Plate assembly		Note: • *Set mechanism to the Eject or Stop mode before removing these parts.* • *The flange of the plastic rivet securing the loading arm assembly and the pole base assembly can be damaged by attempting to remove it directly. Press the loading arm assembly firmly to prevent motion. Then use a narrow-shafted tool to press the rivet from the shaft end to remove it.*
		Mounting position alignment • Remove the tension arm assembly to facilitate operation. See Fig. 1-5-18.	1) Set the supply and take-up loading arm assemblies so that the holes of the gear portions are aligned, then secure to the pole base assemblies with rivets. 2) Shift the plate assembly and install with the holes of the upper and lower components overlapped.
		Slide switch See Fig. 1-5-18.	Be sure to engage the slide switch slider with the edge of the plate assembly.

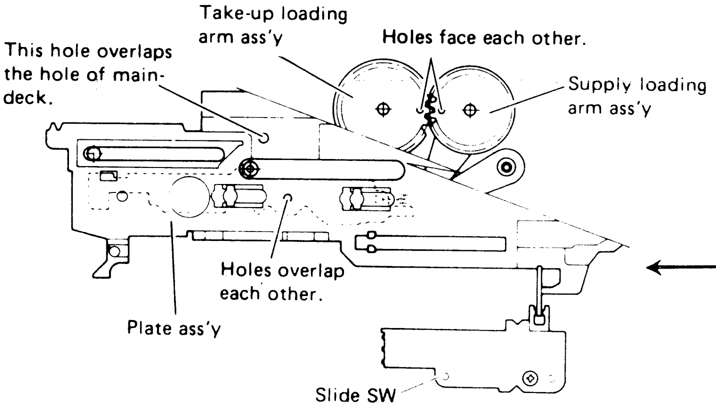

Take-up loading arm ass'y
This hole overlaps the hole of main-deck.
Holes face each other.
Supply loading arm ass'y
Holes overlap each other.
Plate ass'y
Slide SW

Fig. 1-5-18

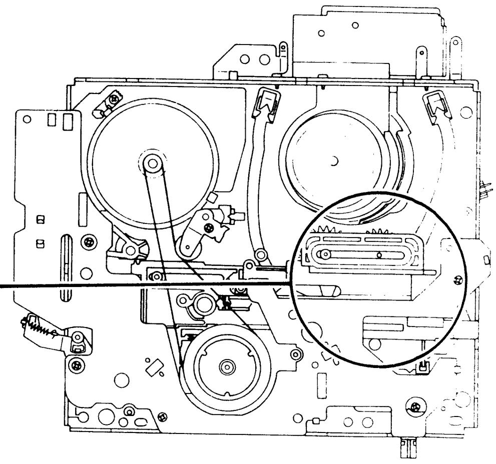


Fig. 1-5-19
T.S. Loading arm position

SECTION 2
ELECTRICAL ADJUSTMENTS

2.1 PREPARATION

Electrical adjustments are required after replacing circuit components and certain mechanical parts.
It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

2.1.1 Required test equipment

1. Color television or monitor
2. Oscilloscope: wide-band, dual-trace, triggered delayed sweep
3. Frequency counter
4. Vectorscope
5. Audio oscillator
6. Audio voltmeter
7. Digital voltmeter
8. Signal generator: RF/IF sweep/marker
9. Signal generator: PAL color bar, stairstep, video sweeper
10. Signal generator: Audio multiplex TV signal generator
11. Recording tape
12. Alignment tape: MH-2, MH-2L, MH-2H
13. RCA-S adapter: PTU93001A
14. Presetting unit: PTU94008
15. Head resonance adapter : PTU94007B
16. Adjust coil : PTU94004A

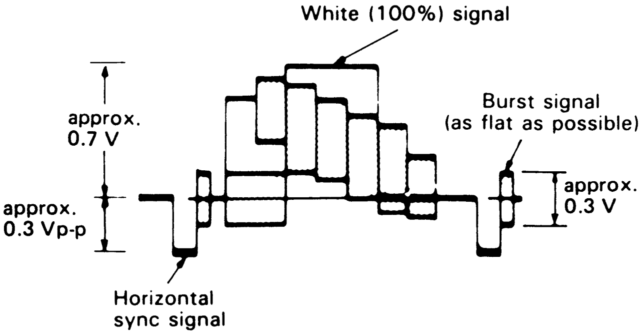


Fig. 2-1-1 Color bar signal of pattern generator

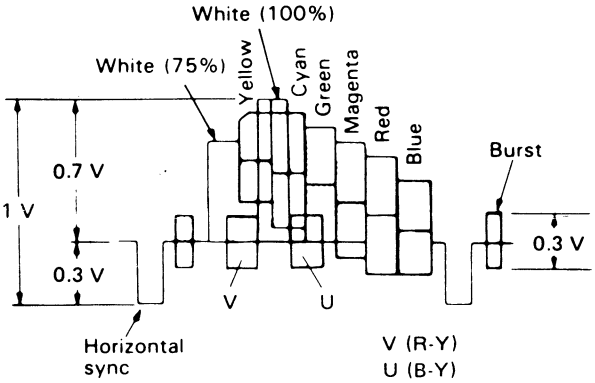


Fig. 2-1-2 Color bar signal waveform

(75%)

White	Yellow	Cyan	Green	Magenta	Red	Blue
V	U	White 100%			Black	

Fig. 2-1-3 Color bar pattern

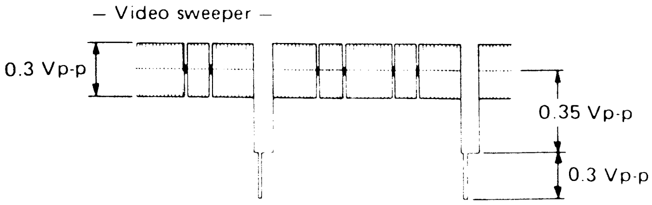


Fig. 2-1-4 Input signal level for video sweeper

2.1.2 Check and adjustment steps

The check and adjustment steps are provided in the following in the form of charts. For clarity, the nomenclature used in the charts is outlined below.

No.	Checks and adjustments are numbered in the recommended sequence in which they are to be performed.
Item	Name assigned to the particular check and adjustment step.
Check Point	Location to which measuring instrument (oscilloscope unless otherwise noted) is to be connected.
Adjustment Parts	Variable component (resistor, capacitor, etc.) to be adjusted in this step. Dash (–) indicates check only.
Signal & Mode	• Input signal required to perform adjustment. Dash (–) indicates that special signal is not required. • Equipment operating mode at time of check or adjustment.

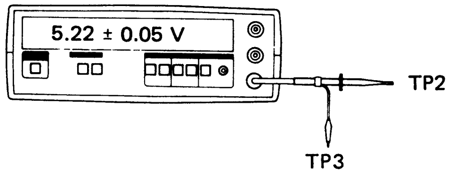
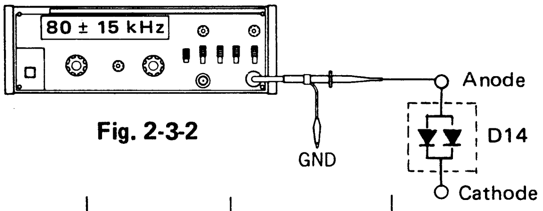
Color bars	Color bars signal as video input.
Stairstep	Stairstep signal as video input.
1 kHz	1 kHz sinewave as audio input signal.
MH-2 color bars	Color bars segment of MH-2 alignment tape.
MH-2 stairstep	Stairstep segment of MH-2 alignment tape.
MH-2 1 kHz	1 kHz audio signal segment of MH-2 alignment tape.
MH-2 RF sweep	RF sweep segment of MH-2 alignment tape.
MH-2L color bars	Color bars segment of MH-2L alignment tape.
MH-2L stairstep	Stairstep segment of MH-2L alignment tape.
MH-2L RF sweep	RF sweep segment of MH-2L alignment tape.
MH-2H color bars	Color bars segment of MH-2H alignment tape.
MH-F2 stairstep	Stairstep segment of MH-F2 alignment tape.
MH-F2 1 kHz	1 kHz FM audio signal segment of MH-F2 alignment tape.

E-E	Power on and machine in Stop mode.
REC	Recording mode
PB	Playback mode
SEARCH	Search (FWDS and REVS) playback mode
SLOW	Slow motion playback mode
STILL	Pause during playback mode
A DUB	Audio dubbing mode
SP mode	SP recording speed
EP mode	EP recording speed
LP mode	LP recording speed
S-VHS mode	Super-VHS recording mode
VHS mode	VHS recording mode

Description	This column provides an explanation of the step, notes and adjustment values.

2.3 SWITCHING REGULATOR CIRCUIT

Note: *Unless otherwise specified, all test points and adjustments are located on the REGULATOR (1) board.*

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	5V DC output voltage	TP2 (INPUT) TP3 (GND) [REGULATOR(2) board]	R36 (SWD 5V)	• Tuner mode • REC • SP mode	1) Set recording video cassette into the cassette housing and set for the REC mode. 2) Connect a digital voltmeter as shown in Fig. 2-3-1. 3) Adjust R36 for 5.22 ± 0.05 V.  Fig. 2-3-1
2	Confirmation of oscillation  Frequency counter 80 ± 15 kHz Anode D14 GND Cathode Fig. 2-3-2	Anode of D14 [SW REG board]		• Tuner mode • REC • SP mode	1) Set recording video cassette into the cassette housing and set for the REC mode. 2) Connect a digital voltmeter as shown in Fig. 2-3-2. 3) Confirm that oscillator frequency is 80 ± 15 kHz.

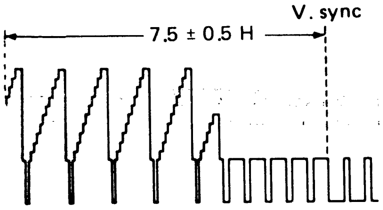
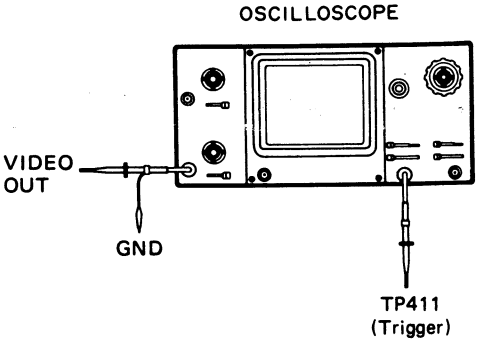
2.4 TIMER CIRCUIT

Note: *Unless otherwise noted, all test points and adjustments are located on the TIMER board.*

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	Timer clock	IC1-16	C6 (Clock)	• E-E	**Note:** *For below adjustments use 10:1 probe with input capacitance lesst han 100 pF.* 1) Disconnect VCR from AC. Connect a frequecy counter between IC1-16 and GND. 2) Short TP1 to GND, then short the leads of capacitor C3 once in order to reset IC1. 3) Connect VCR to AC. All FDP Segments are on. 4) Adjust C6 for 2048.000 ± 0.002 Hz (488.2808 to 488.2818 μs).

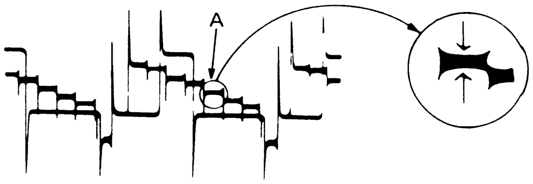
2.5 SERVO CIRCUIT

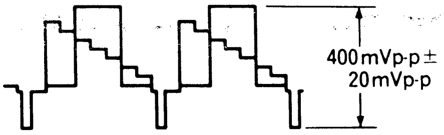
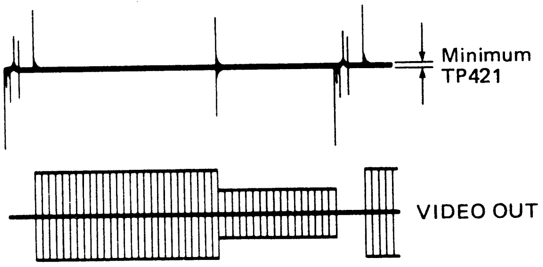
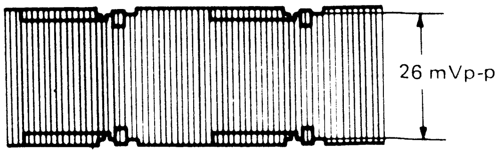
Note: *Unless otherwise specified, all test points and adjustments are located on the VIDEO 1 board.*

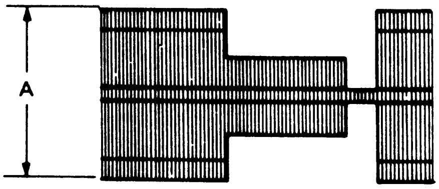
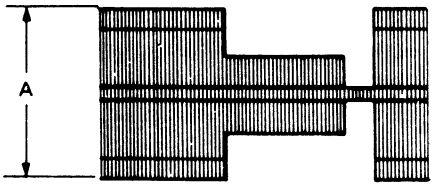
No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	SP PB switching point	VIDEO OUT or TP110  Fig. 2-5-1	R427	•PB •MH-2 (stairstep) •Trigger slope (–) •SP mode •AUTO TRACKING OFF	1) Connect an oscilloscope to VIDEO OUT. 2) Play back the stairstep segment of MH-2 alignment tape. 3) Trigger the oscilloscope externally (– slope) with the signal from TP411. 4) Adjust R427 to position the trigger point 7.5 ± 0.5 H from V. sync.  Fig. 2-5-2
2	SP slow tracking preset	Monitor-TV	Presetting unit (PTU 94008)	• SP mode • REC then PB (slow)	**Note:** *Set VCR to A mode by remote controller.* 1) Set recording video cassette into the cassette housing. 2) Receive a colour broadcast on a VHF-HI channel or supply a colour bar signal to VIDEO IN. 3) Record a colour broadcast or colour bar signal in the SP mode. 4) Play back recorded signal in the FWD and REV slow mode and set the tracking control of the FRONT panel to the center position by simultaneously pressing the (+) and (–) tracking buttons. 5) Observe the display on a monitor-TV and adjust for optimum noise condition (best tracking) by depressing "B (–)" or "C (+)" buttons of presetting unit as required. 6) Depress the STOP button on the FRONT panel. 7) Confirm that the bar noise is not visible on the monitor in the slow mode.
3	LP slow tracking preset	Monitor-TV	Presetting unit	• LP mode • Slow PB	1) In the same manner as the above SP slow mode.

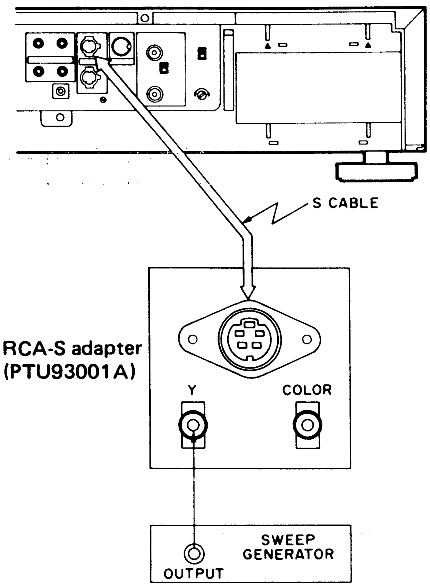
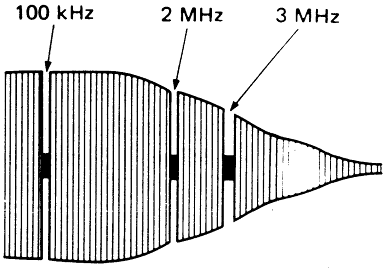
2.6 VIDEO CIRCUIT

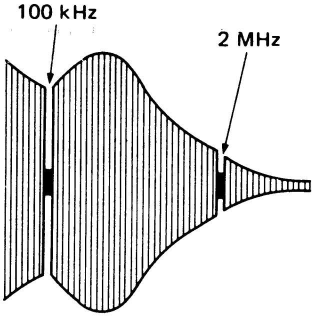
Note: *Unless otherwise specified, all test points and adjustments are located on the VIDEO 1 board.*

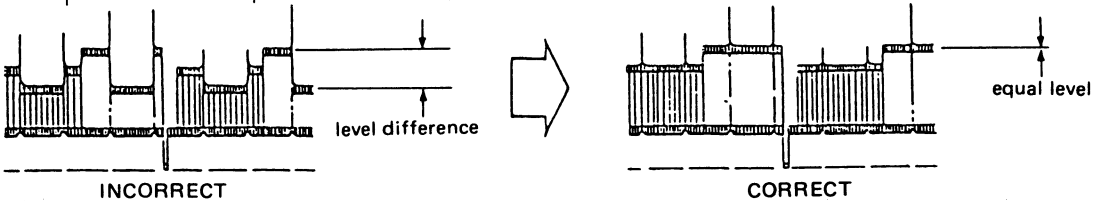
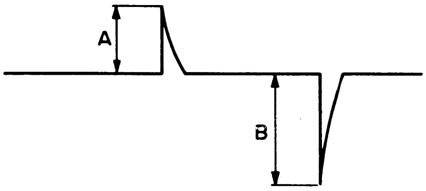
No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	Y comb GAIN	TP225 TP226	R206	• S-VHS mode • SP • E-E • Color bar	1) Connect one channel of a dual trace oscilloscope to TP225 and the other channel to TP226. 2) Adjust R206 so that TP225 and TP226 become the same level.
2	2H delayed chroma	TP231 TP232	R234 L203	• S-VHS mode • SP • E-E • Color bar	1) Connect CH-1 of a dual trace oscilloscope to TP231 and CH-2 to TP232. 2) Set VOLT/DIV controls of both channels to the same range (e.g., 50 mV). 3) Invert CH-2 and use ADD mode. 4) Alternately adjust R234 and L203 for minimum level.
3	4H delayed chroma	TP231 TP233	R238 L205	• S-VHS mode • SP • E-E • Color bar	1) In the same manner, adjust R238 and L205 for minimum level.
4	Y-comb	TP225	R215 R219 R231	• VHS mode • SP • E-E • Color bar	1) Connect an oscilloscope to TP225. 2) Use the controls of the oscilloscope to expand portion A of the TP225 waveform. 3) Adjust R215, R216 and R231 alternately for minimum chromatic level (less than 40 mVp-p of the magenta portion).  Fig. 2-6-1

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
5	E-E level	VIDEO OUT or TP110	R36	• S-VHS mode • SP • E-E • Color bar	1) Connect an oscilloscope to TP110 or VIDEO OUT. 2) Adjust R36 for 0.97 ± 0.03 Vp-p (with 75 Ω load).
6	Sub emph. input level	TP439 [VIDEO UNIT board]	R416 [VIDEO UNIT board]	• S-VHS mode • SP • E-E • Color bar	1) Connect an oscilloscope to TP439. 2) Adjust R416 for 400 ± 20 mVp-p signal level in the SP mode.  Fig. 2-6-2
7	YNR NC balance	TP421 [VIDEO UNIT board]	R444 [VIDEO UNIT board]	• S VHS mode • SP • E-E • Color bar	1) Supply a color bar signal to VIDEO IN and connect an oscilloscope to TP421. 2) Adjust R444 for minimum DC step difference.  Fig. 2-6-3
8	S-VHS mode REC FM level	TP1 [PRE AMP board]	R23 [REC AMP board]	• S-VHS mode • LP mode • REC • Color bar	**Note:** ***Connect an oscilloscope's GND terminal to TP-GND near the shield case of the PRE AMP board.*** 1) Connect an oscilloscope to TP1 of the PRE AMP board and record a color bar signal in the LP mode. 2) Adjust R23 for 26 mVp-p pedestal level, between centers of the waveform outline at the pedestal portion.  Fig. 2-6-4

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
9	SP REC color level and balance	IC501-19 [VIDEO UNIT board]	R91 [REC AMP board]	• S-VHS mode • PB mode • MH-2H color bars • SP mode • AUTO TRACKING OFF • REC then PB • Color bars • SP mode • AUTO TRACKING OFF	**Note:** *Use larger-level waveform for adjustment.* 1) Connect an oscilloscope to IC501-19. Play back the color bar segment of the MH-2H and observe color signal level. 2) Adjust by pressing the + and – TRACKING buttons of the FRONT panel for maximum level of the color waveform and make a note of the higher color level "A". 3) Set the TRACKING control of the FRONT panel to the preset position by simultaneously pressing the + and – TRACKING buttons. 4) Record and play back the color bar signal. If necessary, before recording, adjust R91 so that the higher level channel becomes 110% of the noted level "A" during playback. At this time, confirm that the channel difference is within 3 dB.  Fig. 2-6-5
10	LP REC color level and balance	IC501-19 [VIDEO UNIT board]  Fig. 2-6-6	R90 [REC AMP board]	• S-VHS mode • PB mode • LP mode • MH-2H color bar • AUTO TRACKING OFF • REC then PB • Color bar • LP mode • AUTO TRACKING OFF	**Note:** *Perform the LP mode adjustment after completing that for the SP mode.* 1) Connect an oscilloscope to IC501-19. Play back the color bar segment of the MH-2H and observe color signal level. 2) Adjust by pressing the + and – TRACKING buttons of the FRONT panel for maximum level of the color waveform and make a note of the higher color level "A". 3) Set the TRACKING control of the FRONT panel to the preset position by simultaneously pressing the + and – TRACKING buttons. 4) Record and play back the color bar signal. If necessary, before recording, adjust R90 so that the higher level channel becomes 110% of the noted level "A" during playback. At this time, confirm that the channel difference is within 3 dB.
11	S-VHS mode PB Y level	VIDEO OUT or TP110	R63 (S VHS PB Y LEVEL)	• S-VHS mode • SP mode • REC then PB • Color bars	1) Connect an oscilloscope to VIDEO OUT or TP110. 2) Record the color bar signal in the SP mode, then play it back. 3) Adjust R63 for 0.95 ± 0.03 Vp-p (with 75 Ω load).

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
12	VHS mode PB Y level	VIDEO OUT or TP110	R64 (VHS PB Y LEVEL)	• VHS mode • SP mode • REC then PB • Color bars	1) In the same manner as above (2.5.10), adjust R64 for 0.95 ± 0.03 Vp-p (with 75 Ω load).
13	S-VHS mode SP frequency response and balance	Y OUT  S CABLE RCA-S adapter (PTU93001A) Y COLOR SWEEP GENERATOR OUTPUT	R35 [REC AMP board]	• S-VHS mode • SP mode • REC then PB • Sweeper	1) Terminate Y OUT with a 75 Ω load and set the SHARPNESS control to the center detent position. 2) Connect a signal generator to S-IN and an oscilloscope to Y OUT. 3) Record in the SP mode, then play back and set 100 kHz level to 3 scale divisions on X axis at CH-1 waveform. 4) Adjust R35 (REC AMP board) so that the 3.0 MHz level becomes 2.5 to 2.8 scale divisions (−1 ± 0.5 dB). 5) Confirm that the level difference between both channels is less than 2 dB.  Fig. 2-6-7
14	S-VHS mode LP frequency response and balance	Y OUT	R36 [REC AMP board]	• S-VHS mode • LP mode • REC then PB • Sweeper	1) In the same manner as above (2.5.12), perform adjustment for LP mode. 2) Record in the LP mode, then play back and set 100 kHz level to 3 scale divisions on X axis at CH-1 waveform. 3) Adjust R36 so that the 3.0 MHz level becomes 2.0 to 2.3 scale divisions (−3 ± 0.5 dB). 4) Confirm that the level difference between both channels is less than 2 dB.
		Monitor	R35 (SP) R36 (LP) [REC AMP board]	• S-VHS mode • SP and LP modes • REC then PB • Philips pattern	**Alternate method:** 1) Record and playback a Philips pattern. 2) During playback, observe the picture and adjust R35 (SP mode) and R36 (LP mode) for the best resolution, without impaired S/N, at about 250 lines (3 MHz region). 3) So after this adjustment, confirm black or white spot on edges of playback picture in the Still mode.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
15	VHS mode SP frequency response and balance	Y OUT	R65 [REC AMP board]	• VHS mode • SP mode • REC then PB • Sweeper	1) Terminate Y OUT with a 75 Ω load and set the SHARPNESS control to the center detent position. 2) Connect a signal generator to S-IN and an oscilloscope to Y OUT. 3) Record in the SP mode, then play back and set 100 kHz level to 3 scale divisions on X axis at CH-1 waveform. 4) Adjust R65 (REC AMP board] so that the 2.0 MHz level becomes 2.4 to 3 scale divisions (–1 ± 1 dB). 5) Confirm that the level difference between both channels is less than 2 dB.  Fig. 2-6-8
16	VHS mode LP frequency response and balance	Y OUT	R66 [REC AMP board]	• VHS mode • LP mode • REC then PB • Sweeper	1) In the same manner as above (2.5.14), perform adjustment for LP mode. 2) Record in the LP mode, then play back and set 100 kHz level to 3 scale divisions on the screen at CH-1 waveform. 3) Adjust R66 (REC AMP board) so that the 2 MHz level becomes 1.5 to 2.4 scale divisions (-5^{+3}_{-1} dB). 4) Confirm that the level difference between both channels is less than 2 dB.
		Monitor	R65 (SP) R66 (LP) [REC AMP board]	• VHS mode • SP and LP modes • REC then PB • Philips pattern	**Alternate method:** 1) Record and play back a Philips pattern. 2) During playback, observe the picture and adjust R65 (SP mode) and R66 (LP mode) for the best resolution, without impaired S/N, at about 160 lines (2 MHz region). 3) So after this adjustment, confirm black or white spot.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
17	0.5H delayed color level	VIDEO OUT or TP110	R709	• Color bar • LP mode • REC then PB ↓ • SEARCH FF	1) Connect an oscilloscope to VIDEO OUT or TP110 and set the time base of the oscilloscope to 2 ms/div. Trigger the oscilloscope externally (+ slope) with the signal from TP411 (DRUM FF) or the VIDEO 1 board. 2) During Search, adjust R709 so that the Y level difference is uniform at VIDEO OUT as shown in the figure 2-6-9.  Fig. 2-6-9
18	SECAM DET.	TP601 [VIDEO UNIT board]	LC601 [VIDEO UNIT board]	• E-E • SECAM color bar	1) Connect an oscilloscope to TP601. 2) Adjust LC601 so that A and B are related as follows: A : B = 3 : 4  Fig. 2-6-10

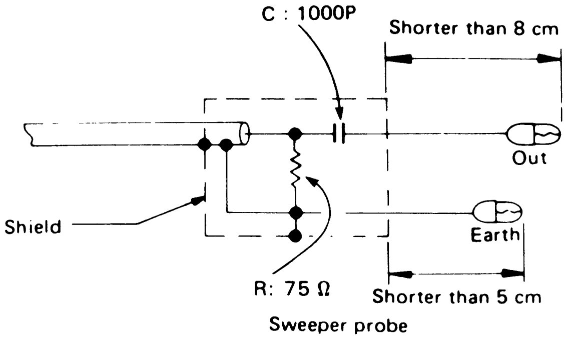
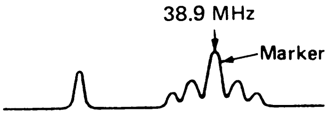
2.7 AUDIO CIRCUIT

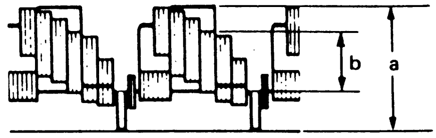
Note: *Unless otherwise specified, all test points and adjustments are located on the VIDEO 1 board.*

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	Audio bias level	TP331 TP332 (GND)	R304 (BIAS ADJ)	• VHS mode • SP mode • No signal	1) Connect a millivoltmeter between TP331 and TP332. 2) Set for REC mode without signal. 3) Adjust R304 for 2.5 mVrms.
2	Audio PB level	AUDIO OUT	R303 (PB LEVEL ADJ)	• REC then PB • SP and LP modes • VHS mode • Audio monitor to Normal	1) Connect an audio tester to AUDIO OUT. 2) Supply an audio signal (–8 dBs/1 kHz) to Peri. IN and record together with a video signal, then play back. 3) Adjust R303 so that the audio output level during playback becomes –6 ± 1 dBs.
3	REC FM level	TP53 [REC AMP board]	R216 [REC AMP board]	• S-VHS mode • LP mode • REC then PB • No signal	1) Connect an oscilloscope to TP53. 2) Record in the SP mode, without an audio signal, then play back. 3) Adjust R216 for 90 mVp-p ± 10 mVp-p FM audio playback voltage.
4	E-E level	AUDIO OUT	R302 (E-E LEVEL) R301 (E-E BALANCE)	• ALC: OFF • REC mode • Audio monitor to Hi-Fi • REC LEVEL VR : CENTRE • REC BALANCE VR : CENTRE	1) Supply a 1 kHz, –8 dBs audio signal to Peri. IN and a video signal to Peri. IN. 2) Set Hi-Fi REC level and balance controls to center detent position. 3) Adjust R302 (E-E level) and R301 (E-E balance) so that audio output level becomes –6 ± 1 dBs at AUDIO OUT (both channels).

2.8 TUNER/IF CIRCUIT

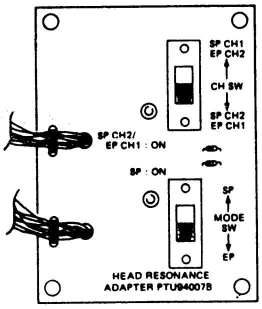
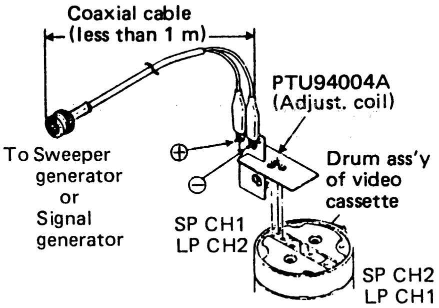
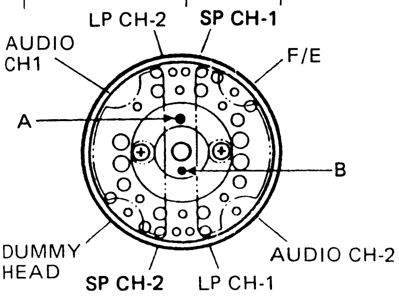
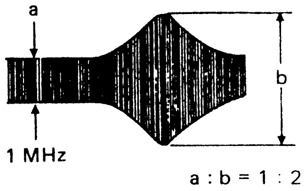
Note: ***Unless otherwise specified, all test points and adjustments are located on the IF board.***

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
	• **Equipment required:** 1. Oscilloscope 2. IF sweep signal generator with suitable markers (PIF, SIF, etc.) 3. Sweeper probe (sweep signal supply cable) as shown on the right.				 C : 1000P Shorter than 8 cm Out Shield Earth R: 75 Ω Shorter than 5 cm Sweeper probe **Fig. 2-8-1**
1	VCO	IC1 pin 28  VCO and sweep signal (beat) **Fig. 2-8-2**	T2 (VCO)	• Sweep generator out: 70 dBμ (38.9 MHz) • Tuner mode without antenna IN	1) Use a sweeper probe as shown in Fig. 2-8-1 and connect the sweep generator output to pin 1 of SAW 1. Adjust the sweep gain so that the waveform does not distort as observed with the oscilloscope. Connect the oscilloscope to pin 28 of IC1 (VIDEO DET OUT) and adjust T2 to align the waveform with the frequency marker as shown in Fig. 2-8-2.
				• TV broadcast • Tuner mode	**Alternate method:** 1) Receive a color broadcast on a VHF-HI channel (7 to 13). 2) Adjust T2 to obtain a fine picture on the monitor.
	• **Before the following adjustments:** 1. Connect a cable to ANT IN and terminate TV OUT at 75 Ω. 2. Set a TV channel signal generator as follows. Video : 70 dBμ/75 Ω, color bar 87.5% modulation Audio : 62 dBμ/75 Ω, 1 kHz ± 25 kHz deviation				
2	RF AGC	IF terminal of Front end	R21 (RF AGC)	• TV signal • Tuner mode	1) Connect the oscilloscope to IF terminal of U/V Tuner (Front end). Adjust R21 for maximum level, then again adjust R21 for −10 dB gain.
		Monitor	R21 (RF AGC)	• TV broadcast • Tuner mode	Alternate method: Note: *Adjust R21 (RF AGC) to correct for excess noise in the picture or when streaky cross interference occurs due to strong electrical fields.* 1) Adjust R21 to minimize noise or streaks on the TV screen. 2) Check for absence of abnormality on all channels.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
3	Color level	CN1-3	R40 (COLOR LEVEL)	• TV broadcast • Tuner mode • Color bar	1) Receiving a color bar signal, set the Y level for 100% reference signal and then adjust R40 for a magenta level of 56% at CN1-3.
	 Y level = 1 Magenta level = 0.56 a : b = 1 : 0.56 Fig. 2-8-3				

2.9 PRE AMP CIRCUIT

Note: *Unless otherwise specified, all test points and adjustments are located on the PRE AMP board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
	IMPORTANT: When switching mode SW and CH SW of the head resonance adapter (PTU94007B), turn power button of the front panel off state because of protection of CP5 of the REGULATOR board.					Note: *This adjustment is required only when flicker or black fringe noise appears after replacing the upper drum (video head).*
1	Head resonance & Q Note: *EP (LP)*	• EE		• CN3-17 (Yellow wire) of the Fixture		1) Disconnect connector of CN1 of the REC AMP board from the PRE/AMP board and connector of CN6 from the SWITCHING REGULATOR board. 2) Use the head resonance adapter (Fixture) PTU-94007B. Connect one connector (18-pin) of the Fixture to CN3 of the PRE AMP board and other connector (3-pin) to CN6 of the SWITCHING REGULATOR board. 3) Set the adjust coil (PTU94004A) onto the upper drum as shown in Fig. 2-9-2. 4) Connect an oscilloscope to CN3-17 (Yellow wire) of the Fixture and shield case (GND) of the PRE AMP board. 5) Supply a sweeper generator output to the adjust coil as shown in Fig. 2-9-2, then adjust the sweeper generator gain so that the waveform does not distort at CN3-17 of the Fixture. 6) Trigger the oscilloscope externally with the signal from V. SYNC of the sweeper generator. 7) Adjust C14 to set the CH1 resonance point to 8 MHz. Use the control of the oscilloscope to position the 1 MHz region at graduation 2 of the oscilloscope scale. 8) Adjust R11 to position the 8 MHz portion at 4 of the oscilloscope as shown in Fig. 2-9-3.
	 SP CH1 EP CH2 CH SW SP CH2 EP CH1 SP CH2/ EP CH1 : ON SP : ON SP MODE SW EP HEAD RESONANCE ADAPTER PTU94007B **Fig. 2-9-1** Fixture		 Coaxial cable (less than 1 m) PTU94004A (Adjust. coil) To Sweeper generator or Signal generator ⊕ ⊖ Drum ass'y of video cassette SP CH1 LP CH2 SP CH2 LP CH1 **Fig. 2-9-2** Adjust coil installation			
			• RF sweep • SP • Mode SW of the Fixture: SP • CH SW of the Fixture: SP (CH1)/ LP (CH2)		• CH1 C14 (fo) R11 (Q)	
	 LP CH-2 SP CH-1 AUDIO CH1 F/E A B DUMMY HEAD SP CH-2 LP CH-1 AUDIO CH-2 **Fig. 2-9-4** Head position		 **Fig. 2-9-3** Video head resonance			
			• CH SW of the Fixture: SP (CH2)/ LP (CH1)		• CH2 C13 (fo) R17 (Q)	9) Change the adjust coil to SP (CH2)/LP (CH1) position opposite the SP (CH1)/LP (CH2) as shown in Fig. 2-9-4. 10) Repeat the above steps 7) and 8) for the CH2. Adjust resonance with C13 and Q with R17.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
		• EE	• RF sweep • LP • Mode SW of the Fixture: LP • CH SW of the Fixture: SP (CH2)/ LP (CH1)	• CN3-16 (Orange wire) of the Fixture	• CH1 C12 (fo) R15 (Q)	11) In the same manner as above. Connect the oscilloscope to CN3-16 (orange wire) of the Fixture. 12) Repeat the above steps 7) and 8) for the LP mode. Adjust resonance with C12 and Q with R15.
			• CH SW of the Fixture: SP (CH1)/ LP (CH2)		• CH2 C11 (fo) R14 (Q)	13) Similarly, perform adjustment in the same manner as for CH1. 14) Change the adjust coil to SP (CH1)/LP (CH2) position opposite the SP (CH2)/LP (CH1) as shown in Fig. 2-9-4. 15) Adjust resonance with C11 and Q with R14.

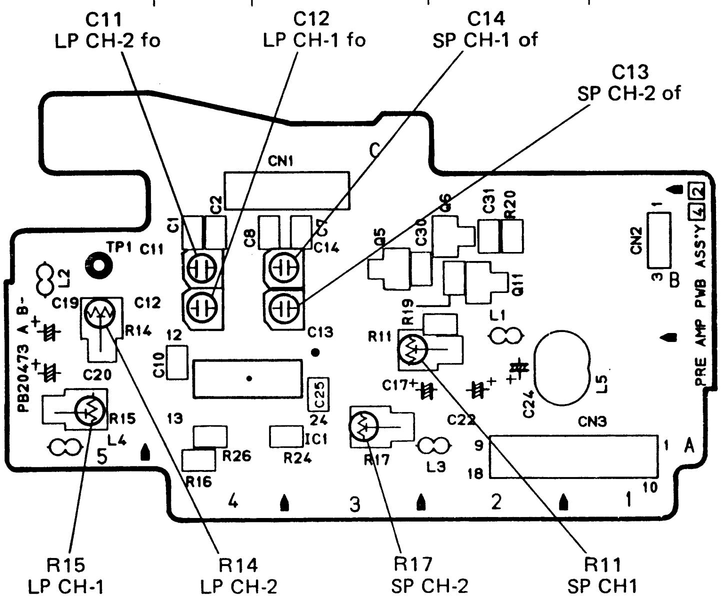
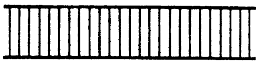
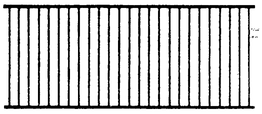

C11
LP CH-2 fo
C12
LP CH-1 fo
C14
SP CH-1 of
C13
SP CH-2 of
CN1
CN2
CN3
TP1
PB20473 A B-
PRE AMP PWB ASS'Y
R15
LP CH-1
HEAD RESON
R14
LP CH-2
HEAD RESON
R17
SP CH-2
HEAD RESON
R11
SP CH1
HEAD RESON

Fig. 2-9-5 Adjustment element location

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
		• EE	• 1 MHz signal • SP • Mode SW of the Fixture: SP • CH SW of the Fixture: SP (CH1)/ LP (CH2)  Fig. 2-9-6 1 MHz signal	• CN3-17 (Yellow wire) of the Fixture	• CH1 C14 (fo) R11 (Q)	**Alternate method:** 1) Repeat the above steps 1) to 4). 2) Supply 1 MHz signal to the adjust coil as shown in Fig. 2-9-2, then adjust the signal generator gain so that the waveform does not distort at CN3-17 (yellow wire) of the Fixture. 3) Use the control of the oscilloscope to position the 1 MHz region at graduation 2 of the oscilloscope scale as shown in Fig. 2-9-6. 4) Set signal generator for 8.0 MHz. 5) Adjust C14 (CH1 resonance) for maximum signal amplitude. 6) Adjust R11 (CH1 Q) so that amplitude of the signal (8 MHz) is 2 times (6 dB) that of the 1 MHz signal as shown in Fig. 2-9-7.
			• CH SW of the Fixture: SP (CH2)/ LP (CH1)  Fig. 2-9-7 8 MHz signal		• CH2 C13 (fo) R17 (Q)	7) Change the adjust coil to SP (CH2)/LP (CH1) position opposite the SP (CH1)/LP (CH2) as shown in Fig. 2-9-4. 8) Repeat the above steps 3), 4), 5) and 6) for the CH2.
		• EE	• 1 MHz signal • EP • Mode SW of the Fixture: EP • CH SW of the Fixture: SP (CH2)/ LP (CH1)	• CH3-16 (Orange wire) of the Fixture	• CH1 C12 (fo) R15 (Q)	9) In the same manner as above. Connect the oscilloscope to CN3-16 (orange wire) of the Fixture. 10) Repeat the above steps 3), 4), 5) and 6) for the LP mode. Adjust resonance with C12 and Q with R15.
			• CH SW of the Fixture: SP (CH1)/ LP (CH2)		• CH2 C11 (fo) R14 (Q)	11) Similarly, perform adjustment in the same manner as for CH1. 12) Change the adjust coil to SP (CH1)/LP (CH2) position opposite the SP (CH2)/LP (CH1) as shown in Fig. 2-9-4. 13) Adjust resonance with C11 and Q with R14.

2.10 DEMODULATOR CIRCUIT

Note: *Unless otherwise specified, all test points and adjustments are located on the DEMODULATOR board.*

Audio Multiplex TV Signal Generator

Recommended Specifications

1. Signal Format	Based on CCIR-B
2. Frequency	
Video Carrier Fv	38.9 MHz
1st Sound Carrier fs_1	33.4 MHz
2nd Sound Carrier fs_2	33.1578125 MHz
3. Modulator	
Video	Crosshatch (black on white) V: 50 Hz, H: 15.625 kHz
Audio	Sinewave 1 kHz; CH1 and CH-2 outputs switchable
4. Output	97 dB/μV (open) ± 2 dB fixed, BNC-R 75 Ω
5. P-S Ratio	S_1 P – 13 dB ± 2 fixed S_2 P – 20 dB ± 2 fixed
6. Modulation	
Video	87.5% ± 3%
Audio	±30 kHz ± 2 kHz
7. Stereo Separation	Less than –40 dB
8. Pilot Signal	
Carrier Frequency	54.6875 kHz ± 5 Hz synchronized type
Stereo	117.5 Hz AM 50%
Dual	274.1 Hz AM 50%

9. Sound Modulation Modes	S_1	S_2
Mono	Mono 1	Mono 2
Stereo	(L + R)/2	R
Dual	Mono 1	Mono 2
10. Functions	S_1	S_2
Mono (M)	100%	100%
Stereo (L, R)	(L + R)/2	R
(L)	L/2	–
(R)	R/2	R
(OFF)	–	–
Mult (S_1, S_2)	100%	100%
(S_1)	100%	0
(S_2)	0	100%
(OFF)	0	0
V. MOD (ON/OFF)		
11. Frequency Accuracy	Within $\pm 5 \times 10^{-5}$	
12. Spurious	Less than –50 dB	
13. Saw Filter	Self-contained	

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	First audio detector coil	IC201 pin 3	T4 [IF board]	•BILING mode •SUB: unmod. •MAIN: mod.	1) Apply Main audio modulated signal to the front end IF terminal. 2) Connect a distortion meter to IC201 pin 3. 3) Adjust T4 of the IF baord for minimum distortion. **Note:** *Audio multiplex TV signal generator connection is the same for the following adjustments.*
2	Second audio detector coil	IC201 pin 2	T201	•BILING mode •SUB: mod. •MAIN: unmod.	1) Connect a distortion meter to IC201 pin 2. 2) Adjust T201 of the IF board for minimum distortion.
3	Stereo separation	IC201 pin 5	R202	•STEREO mode •R : mod. •L : unmod.	1) Set a signal generator to Stereo mode, but adjust only the R channel. 2) Connect an oscilloscope to IC201 pin 5. 3) Adjust R202 for minimum output level.
4	Buzz	IC201 pin 1	T8, T2 [IF board]	•STEREO mode •R/L : unmod.	1) Connect a noise meter to CN201 pin 1 and an oscilloscope to AC output of the noise meter. 2) Adjust T8 of the IF board for minimum Philips pattern noise. 3) Adjust T2 of the IF board for minimum crosshatch noise.
5	Audio output level	CN201 pin 1 (L) CN201 pin 3 (R)	R221 (L) R224 (R)	•STEREO mode •R: mod./unmod. •L: unmod./mod.	1) Set a signal generator for Stereo mode. 2) Connect an audio meter to CN201 pin 1. 3) Adjust R221 (L channel) for 18.0 dBs ± 0.5 dB. 4) Similarly, connect an audio meter to pin 3 of CN201 and adjust R224 for the R channel.

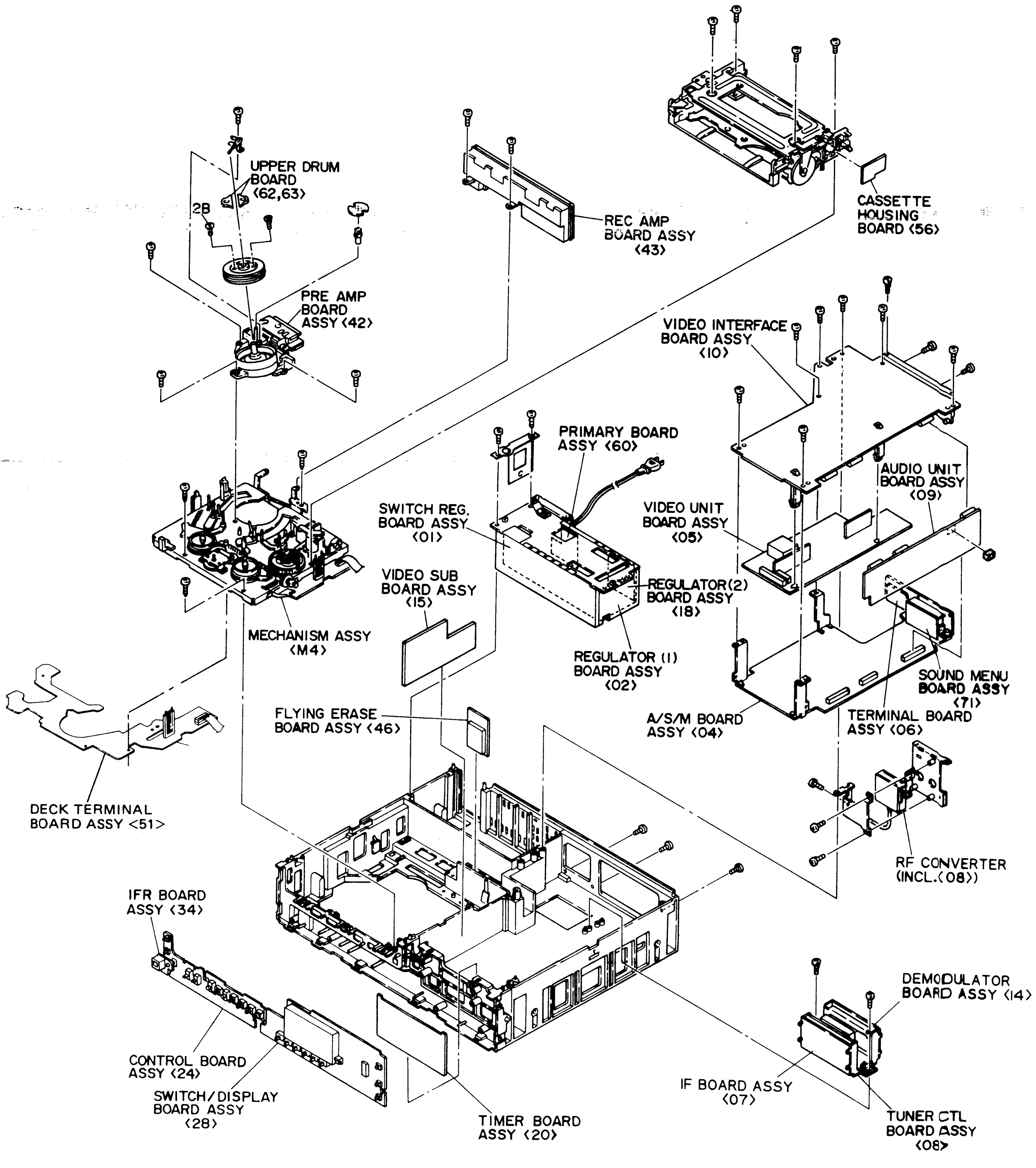
2.11 ON SCREEN CIRCUIT

Note: *Unless otherwise specified, all test points and adjustments are located on the VIDEO 1 board.*

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	Charactor position	TP901	C905	• E-E mode	1) Connect a frequency counter to TP901 and GND. 2) Short IC901-3 pin to GND. 3) Adjust C905 for 7.30 ± 0.05 MHz. **Note:** *If incorrectly the above adjustment, slip out the on screen display.* *For adjustment of above steps (2) to (4), looking for Menu on the monitor-TV and rough adjustment C905 preparation.*
2	Back ground colour	TP902	C916	• E-E mode	1) Connect a frequency counter to TP902 and GND. 2) Adjust C916 for 17.73447 ± 0.00030 MHz. **Note:** *If incorrectly the above adjuatment, blue back picture is not appear on the monitor-TV.* *For adjustment of above steps (1) to (2), looking for Menu on the monitor-TV and rough adjustment C916 preparation.*

SECTION 3
CHARTS AND DIAGRAMS

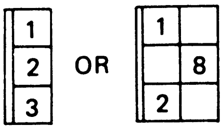
3.1 CIRCUIT BOARD AND LOCATION


UPPER DRUM BOARD ‹62,63›
2B
REC AMP BOARD ASSY ‹43›
CASSETTE HOUSING BOARD ‹56›
PRE AMP BOARD ASSY ‹42›
VIDEO INTERFACE BOARD ASSY ‹10›
PRIMARY BOARD ASSY ‹60›
SWITCH REG. BOARD ASSY ‹01›
VIDEO UNIT BOARD ASSY ‹05›
AUDIO UNIT BOARD ASSY ‹09›
VIDEO SUB BOARD ASSY ‹15›
REGULATOR(2) BOARD ASSY ‹18›
MECHANISM ASSY ‹M4›
REGULATOR (1) BOARD ASSY ‹02›
SOUND MENU BOARD ASSY ‹71›
FLYING ERASE BOARD ASSY ‹46›
A/S/M BOARD ASSY ‹04›
TERMINAL BOARD ASSY ‹06›
DECK TERMINAL BOARD ASSY <51>
RF CONVERTER (INCL.‹08›)
IFR BOARD ASSY ‹34›
DEMODULATOR BOARD ASSY ‹14›
CONTROL BOARD ASSY ‹24›
SWITCH/DISPLAY BOARD ASSY ‹28›
IF BOARD ASSY ‹07›
TIMER BOARD ASSY ‹20›
TUNER CTL BOARD ASSY ‹08›

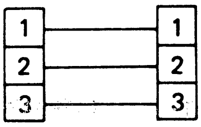
3.2 GENERAL INFORMATION

3.2.1 Connections

Note:
Unless otherwise specified, only signal input flow is indicated.
Connection arrows indicate only signal outputs.



: Connectors



: Board in connectors

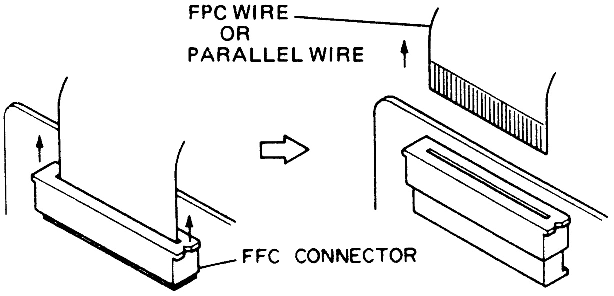
① ② ③ OR ○ ○ ○ : Direct connections

(VS)
(MS)
(SM)

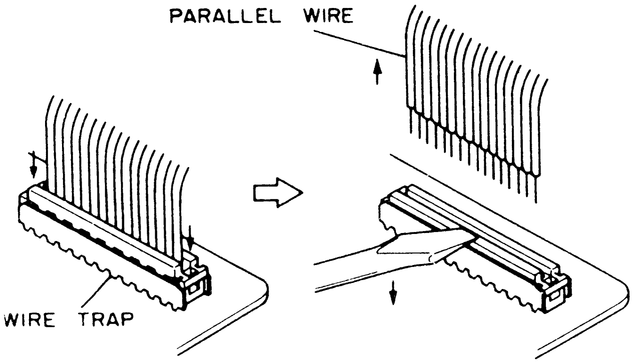
: Connected pattern in the board.
Abbreviations
V : Video M : Mechacon
S : Servo A : Audio
VS : Signal flow from video to servo.

3.2.2 Disconnecting the flatwire

1. Pull the connector structure upward to release the clamp when removing or inserting the flat wire cable.

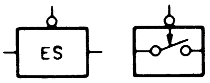


2. Depress the connector structure downward to release the clamp when removing or inserting the flat wire cable, as indicated below.

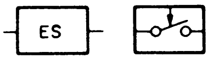


3.2.3 Indications

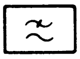
AUX : Active only at high.
$\overline{AUX}$: Active only at low.
$\bar{A}\bar{U}\bar{X}$: Active only at middle.
$\bar{A}U\bar{X}$: Active only at open.



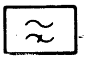
: Active only at low for electronic switch.



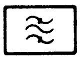
: Active only at high for electronic switch.



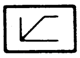
: Low pass filter.



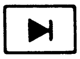
: High pass filter.



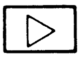
: Band pass filter.



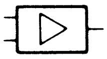
: Limiter.



: Detector



: Amplifier.



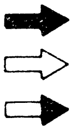
: Mixer stage.

3.2.4 Schematic diagram values

Unless otherwise specified.

1. All resistance values are in ohms, 1/6 W, 1/8 W, (refer to parts list).
2. All capacitance values are in μF, (P; PF).
3. All inductance values are in μH, (m; mH).
4. All diodes are 1SS133 or MA165, (refer to parts list).
5. Voltages are DC-measured (reference to ground) with a digital voltmeter during recording (S VHS, SP mode) and playback (S VHS, SP mode) with alignment tape. Where voltages differ between recording and playback, the voltage during playback is shown in parentheses.
6. Waveforms (VIDEO System) are measured (reference to ground) with a color bar during recording (S VHS, SP mode) and playback (SP mode) with alignment tape.
7. Waveforms (AUDIO System) are measured (reference to ground) with 1 kHz (−8 dBs) during recording and playback with alignment tape (1 kHz).
8. Shaded (   ) parts are critical for safety.
   Replace only with specified parts numbers.

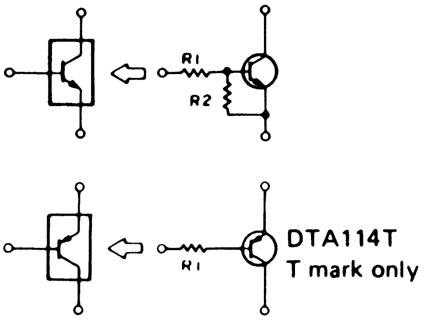
3.2.5 Signal flow in the schematic



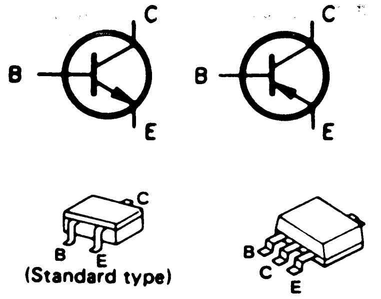
Recording signal path
Playback signal path
REC/PB signal path

3.2.6 Semiconductors

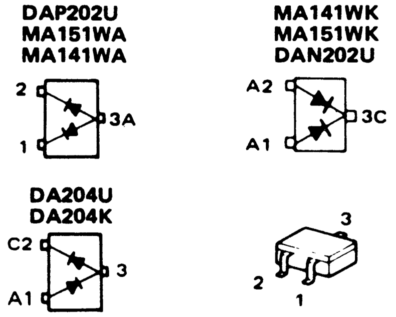
1. Digital transistor


R1
R2
R1
DTA114T
T mark only

2. Chip transistor


C
B
E
C
B
E
C
B
E
(Standard type)
B
C
E

3. Chip diode


DAP202U
MA151WA
MA141WA
2
3A
1
MA141WK
MA151WK
DAN202U
A2
3C
A1
DA204U
DA204K
C2
3
A1
3
2
1

Note:
The digital transistor includes built in resistors.
It features small size and high reliability.
Both PNP and NPN types are available.

Uses:
Inverter, Interface, driver circuits.

3.2.7 Replacement of chip parts

For replacing chip parts, proceed it as follows.
Use a well insulated fine-tipped soldering iron (approx. 17 W, 130°C ~ 260°C in temp.).
In addition, it is recommended to use a soldering iron (55 W approx.) with solder absorber for convenience.

Caution:
- Do not apply heat for more than 3 seconds.
- Do not rub electrodes.
- Do not reuse chips removed once. Discard them.
- Supplementary cementing is not required.

1. Soldered condition of chip parts

- Resistors, capacitors, etc.

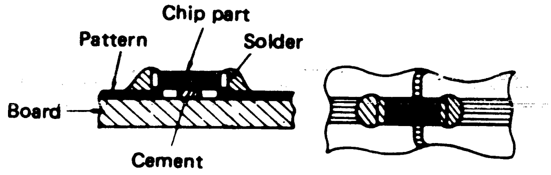

Chip part
Pattern
Solder
Board
Cement

Fig. 3-2-1 Soldering condition-1

- Transistors, diodes, etc.

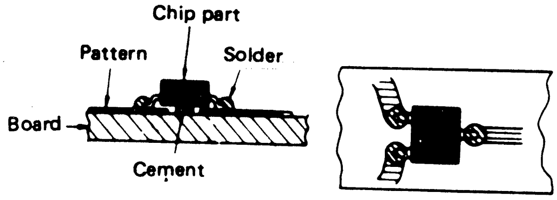

Chip part
Pattern
Solder
Board
Cement

Fig. 3-2-2 Soldering condition-2

2. How to remove chip parts

- Resistors, capacitors, etc.

1) Set a chip parts replacing tool onto the chip parts to hold it down.
2) Unsolder at a side of the chip parts.

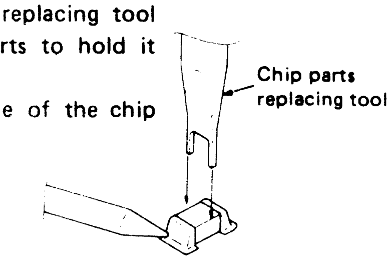

Chip parts replacing tool

Fig. 3-2-3 R/C removal-1

3) Remove the chip parts by twisting and sliding it.

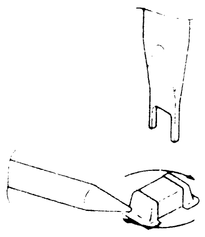


Fig. 3-2-4 R/C removal-2

3. How to remove transistors, diode.

1) Unsolder at the one-lead side of the chip parts.

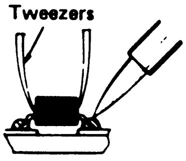


Fig. 3-2-5 Tr/Diode removal-1

2) Lift the unsoldered side upwards.

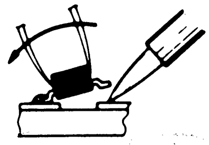


Fig. 3-2-6 Tr/Diode removal-2

3) Heat the other two leads simultaneously and remove the chip parts upwards.

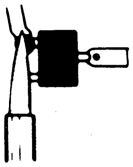


Fig. 3-2-7 Tr/Diode removal-3

4. Preheating and soldering

When setting new chip parts, especially capacitors, but except transistors, preheat them with hot air (150°C approx.) by use of a blower type of hair dryer for about 2 minutes just before soldering. For soldering, use a soldering iron of 30 watt approximately.

5. How to set and solder chip parts

1) Presolder the contact points of the circuit pattern to which the chip parts will be soldered.

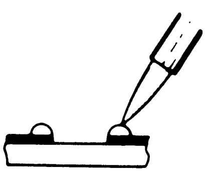


Fig. 3-2-8 Soldering-1

2) Holding down the chip parts with the chip parts replacing tool, solder it with a soldering iron.

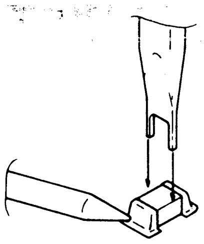
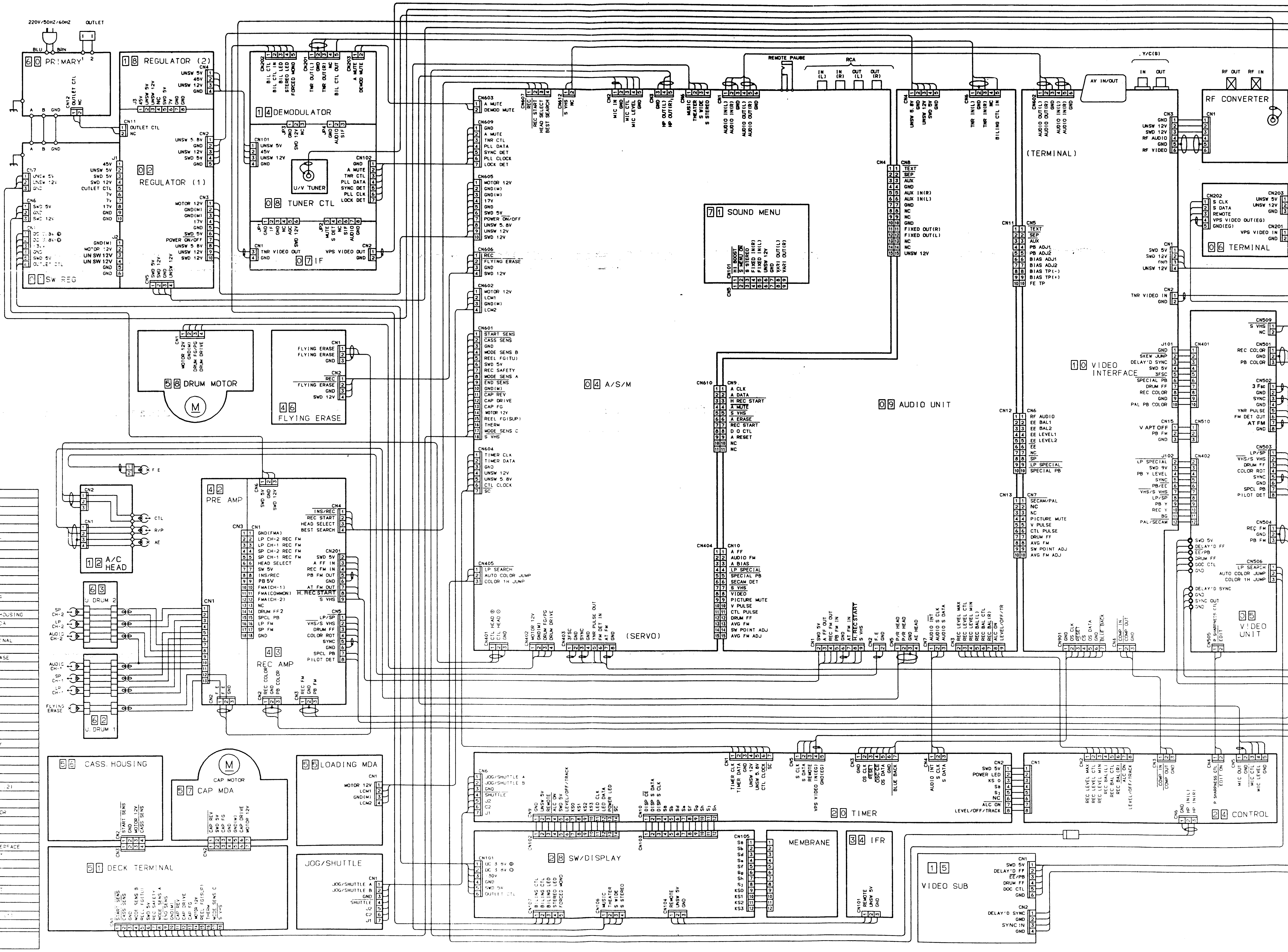


Fig. 3-2-9 Soldering-2

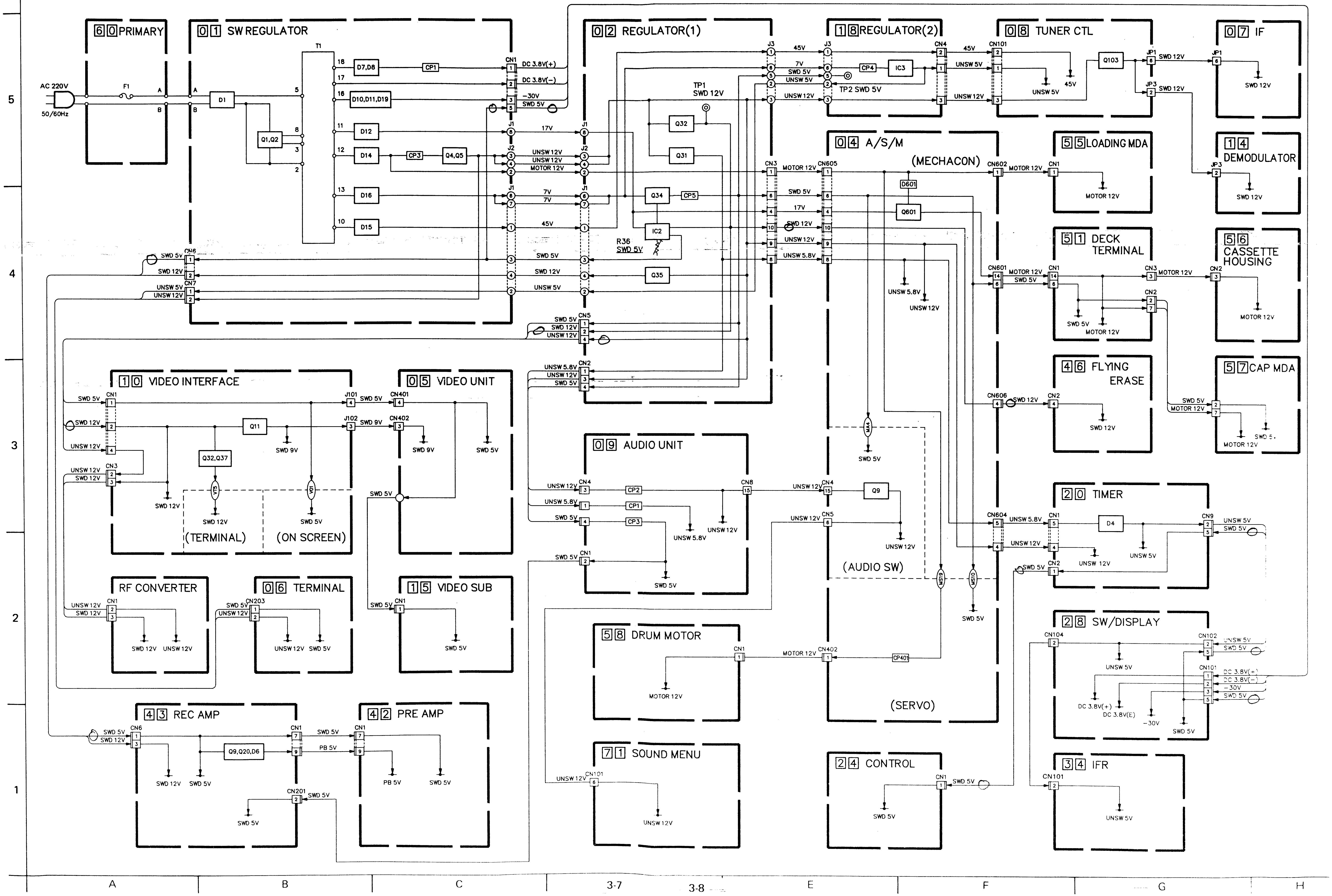
3.3 BOARD INTERCONNECTIONS



220V/50HZ/60HZ
OUTLET
60 PRIMARY
18 REGULATOR (2)
14 DEMODULATOR
08 TUNER CTL
U/V TUNER
07 IF
02 REGULATOR (1)
01 SW REG
58 DRUM MOTOR
46 FLYING ERASE
12 A/C HEAD
63 U.DRUM 2
62 U.DRUM 1
42 PRE AMP
43 REC AMP
56 CASS. HOUSING
57 CAP MDA
CAP MOTOR
55 LOADING MDA
51 DECK TERMINAL
JOG/SHUTTLE
04 A/S/M
(SERVO)
71 SOUND MENU
09 AUDIO UNIT
REMOTE PAUSE
RCA
AV IN/OUT
Y/C(S)
RF CONVERTER
RF OUT
RF IN
(TERMINAL)
06 TERMINAL
10 VIDEO INTERFACE
05 VIDEO UNIT
20 TIMER
24 CONTROL
28 SW/DISPLAY
MEMBRANE
34 IFR
15 VIDEO SUB
SP CH-2
LP CH-2
AUDIO CH-2
AUDIO CH-1
SP CH-1
LP CH-1
FLYING ERASE
CTL
R/P
AE
F.E
A
B
C
D
E
F
G
H
6
5
4
3
2
1

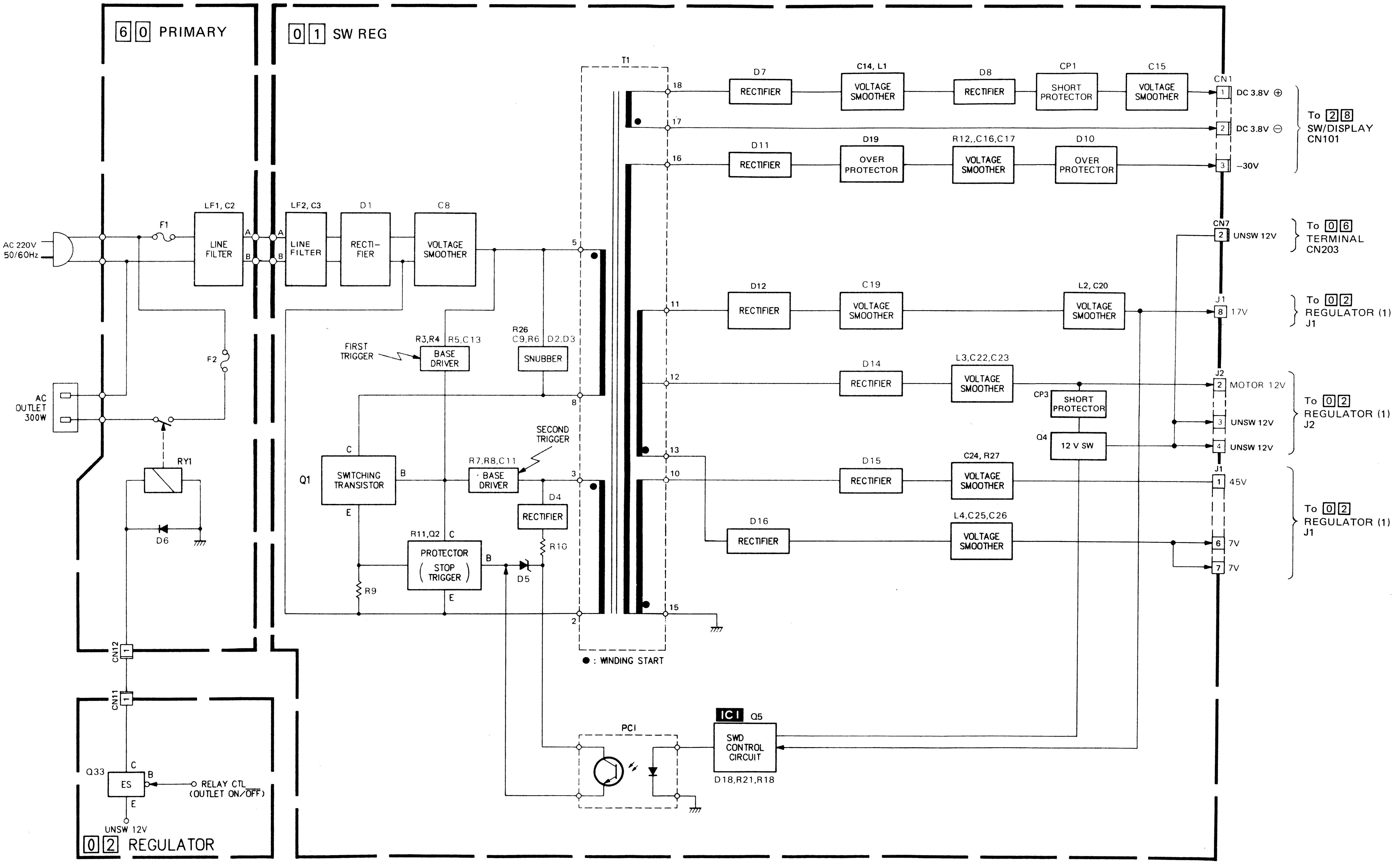
NO	NAME
7 1	SOUND MENU
6 3	U.DRUM2
6 2	U.DRUM1
6 1	
6 0	PRIMARY
5 8	DRUM MOTOR
5 7	CAP MOTOR
5 6	CASSETTE HOUSING
5 5	LOADING MDA
5 1	DECK TERMINAL
4 6	FLYING ERASE
4 3	REC AMP
4 2	PRE AMP
3 7	
3 4	IFR
2 8	SW/DISPLAY
2 4	CONTROL
2 1	
2 0	TIMER
1 9	
1 8	REGULATOR (2)
1 5	VIDEO SUB
1 4	DEMODULATOR
1 2	A/C HEAD
1 0	VIDEO INTERFACE
0 9	AUDIO UNIT
0 8	TUNER CTL
0 7	IF
0 6	TERMINAL
0 5	VIDEO UNIT
0 4	A/S/M
0 3	
0 2	REGULATOR (1)
0 1	SW REG

3.4 POWER SYSTEM BLOCK DIAGRAM

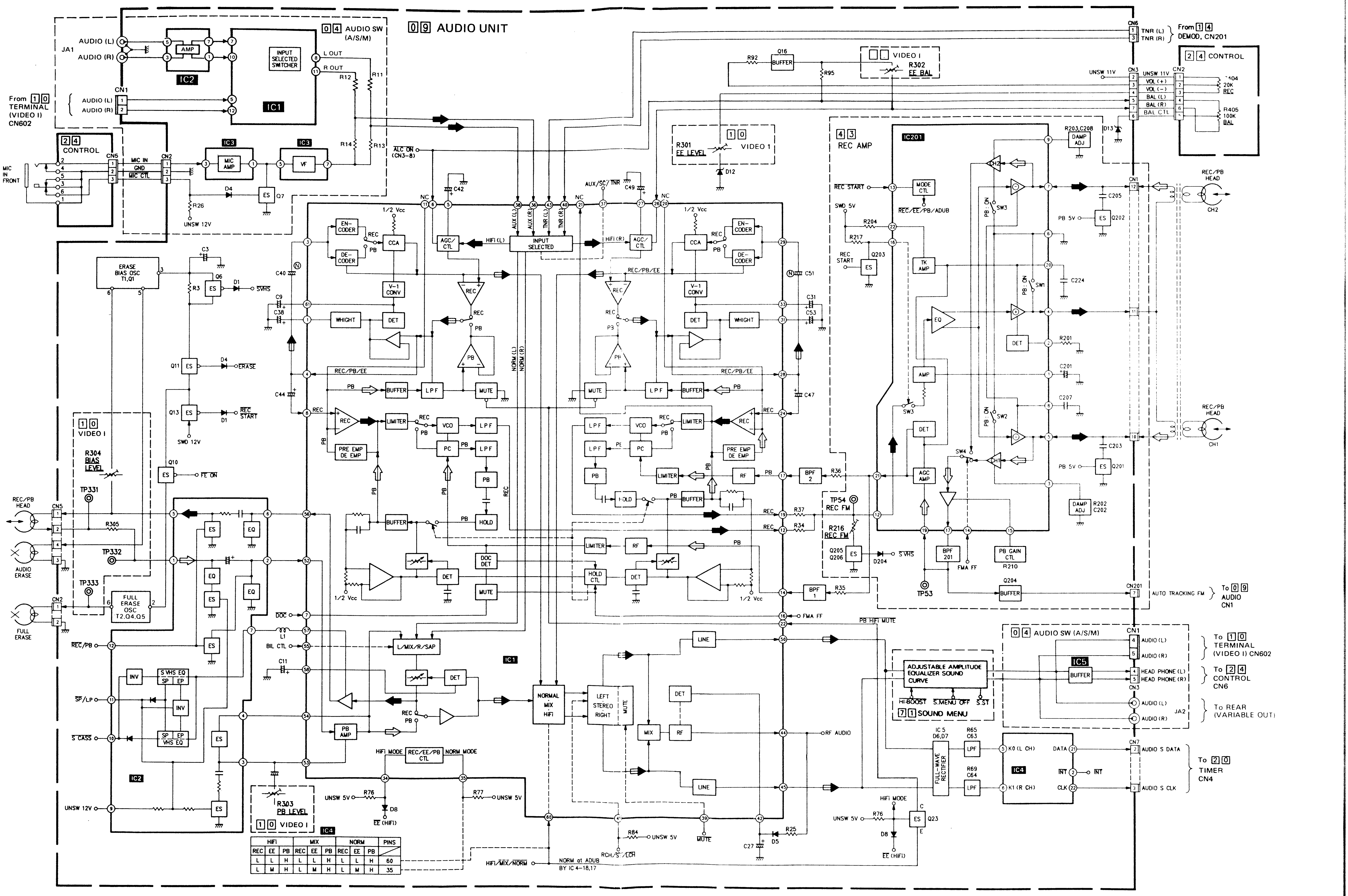


6 0 PRIMARY
AC 220V
50/60Hz
F1
0 1 SW REGULATOR
T1
D1
Q1,Q2
D7,D8
D10,D11,D19
D12
D14
D16
D15
CP1
CP3
Q4,Q5
CN1
DC 3.8V(+)
DC 3.8V(−)
−30V
SWD 5V
17V
UNSW 12V
MOTOR 12V
7V
45V
SWD 12V
UNSW 5V
CN6
CN7
0 2 REGULATOR(1)
J1
J2
J3
TP1 SWD 12V
Q32
Q31
Q34
CP5
IC2
R36 SWD 5V
Q35
CN5
CN2
UNSW 5.8V
1 8 REGULATOR(2)
CP4
IC3
TP2 SWD 5V
CN4
0 8 TUNER CTL
CN101
Q103
JP1
JP3
0 7 IF
1 4 DEMODULATOR
0 4 A/S/M
(MECHACON)
CN3
CN605
CN602
D601
Q601
CN601
CN606
CN604
CN402
CP401
(AUDIO SW)
(SERVO)
Q9
CN5
5 5 LOADING MDA
5 1 DECK TERMINAL
5 6 CASSETTE HOUSING
4 6 FLYING ERASE
5 7 CAP MDA
2 0 TIMER
D4
CN9
2 8 SW/DISPLAY
CN104
CN102
DC 3.8V(E)
3 4 IFR
2 4 CONTROL
1 0 VIDEO INTERFACE
Q11
Q32,Q37
J101
J102
SWD 9V
(TERMINAL)
(ON SCREEN)
0 5 VIDEO UNIT
CN401
CN402
0 9 AUDIO UNIT
CN4
CN8
CP2
CP1
CP3
RF CONVERTER
0 6 TERMINAL
CN203
1 5 VIDEO SUB
5 8 DRUM MOTOR
7 1 SOUND MENU
4 3 REC AMP
Q9,Q20,D6
CN201
4 2 PRE AMP
PB 5V
A
B
C
E
F
G
H
1
2
3
4
5
6

3.5 SWITCHING REGULATOR BLOCK DIAGRAM


60 PRIMARY
01 SW REG
02 REGULATOR
AC 220V 50/60Hz
F1
LF1, C2
LINE FILTER
A
B
F2
AC OUTLET 300W
RY1
D6
LF2, C3
LINE FILTER
D1
RECTI-FIER
C8
VOLTAGE SMOOTHER
R3,R4
R5,C13
FIRST TRIGGER
BASE DRIVER
R26
C9,R6
D2,D3
SNUBBER
Q1
SWITCHING TRANSISTOR
C
B
E
SECOND TRIGGER
R7,R8,C11
BASE DRIVER
D4
RECTIFIER
R10
R11,Q2
PROTECTOR
(STOP TRIGGER)
D5
R9
T1
5
8
3
2
18
17
16
11
12
13
10
15
●: WINDING START
D7
RECTIFIER
C14, L1
VOLTAGE SMOOTHER
D8
RECTIFIER
CP1
SHORT PROTECTOR
C15
VOLTAGE SMOOTHER
D11
RECTIFIER
D19
OVER PROTECTOR
R12,,C16,C17
VOLTAGE SMOOTHER
D10
OVER PROTECTOR
D12
RECTIFIER
C19
VOLTAGE SMOOTHER
L2, C20
VOLTAGE SMOOTHER
D14
RECTIFIER
L3,C22,C23
VOLTAGE SMOOTHER
CP3
SHORT PROTECTOR
Q4
12 V SW
D15
RECTIFIER
C24, R27
VOLTAGE SMOOTHER
D16
RECTIFIER
L4,C25,C26
VOLTAGE SMOOTHER
CN1
1 DC 3.8V ⊕
2 DC 3.8V ⊖
3 −30V
To 28 SW/DISPLAY CN101
CN7
2 UNSW 12V
To 06 TERMINAL CN203
J1
8 17V
To 02 REGULATOR (1) J1
J2
2 MOTOR 12V
3 UNSW 12V
4 UNSW 12V
To 02 REGULATOR (1) J2
J1
1 45V
6 7V
7 7V
To 02 REGULATOR (1) J1
PCI
IC1 Q5
SWD CONTROL CIRCUIT
D18,R21,R18
CN12
CN11
1
Q33
ES
C
B
E
RELAY CTL (OUTLET ON/OFF)
UNSW 12V

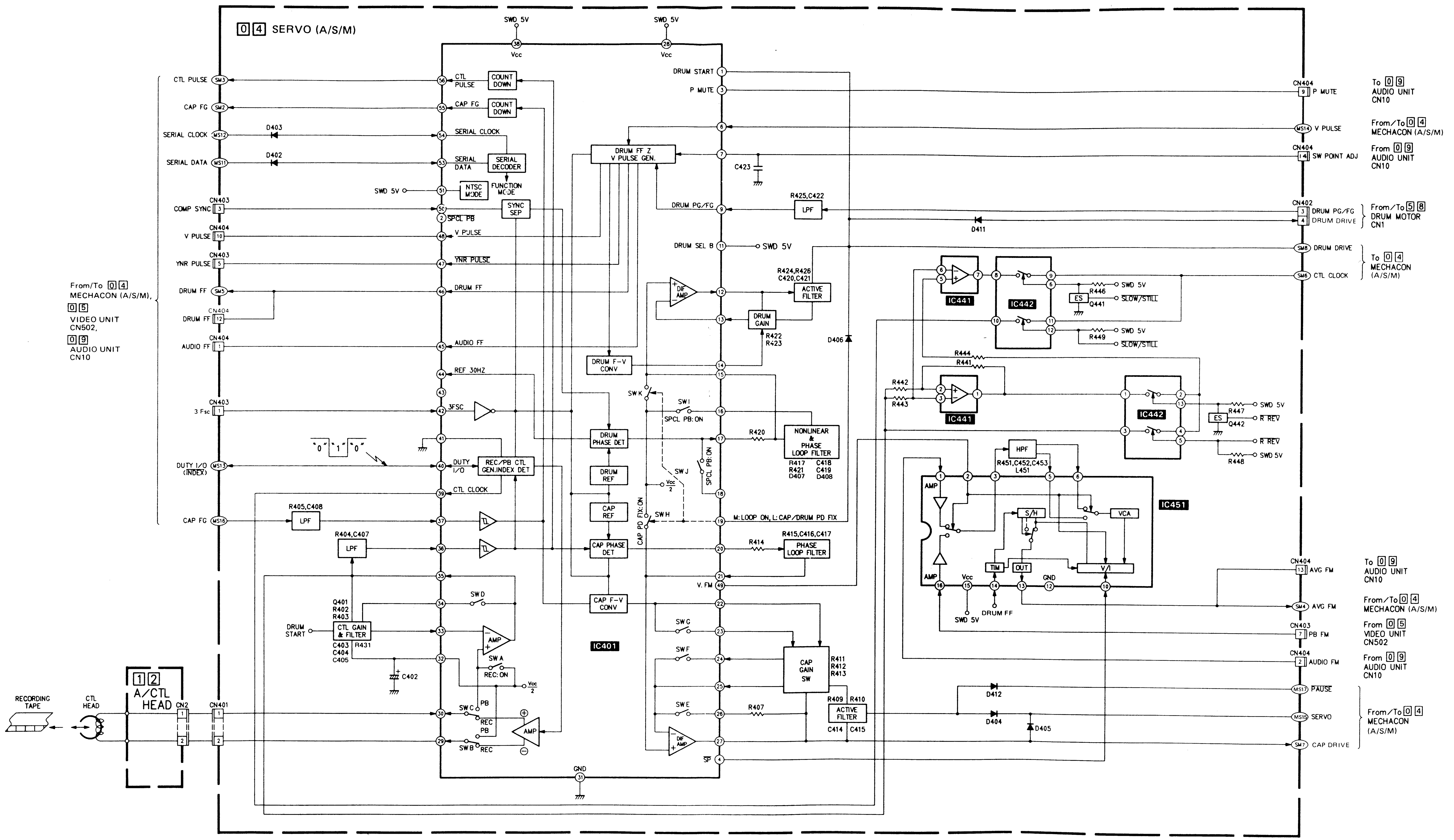
3.6 AUDIO BLOCK DIAGRAM


09 AUDIO UNIT
04 AUDIO SW (A/S/M)
JA1
AUDIO (L)
AUDIO (R)
AMP
IC2
INPUT SELECTED SWITCHER
IC1
L OUT
R OUT
R11
R12
R13
R14
CN1
From 10 TERMINAL (VIDEO I) CN602
24 CONTROL
CN5
CN2
MIC IN
GND
MIC CTL
MIC IN FRONT
IC3
MIC AMP
VF
D4
ES
Q7
R26
UNSW 12V
ALC ON (CN3-8)
C42
AUX/SC/TNR
C49
NC
AUX (L)
AUX (R)
TNR (L)
TNR (R)
INPUT SELECTED
HiFi (L)
HiFi (R)
AGC/CTL
1/2 Vcc
EN-CODER
DE-CODER
CCA
REC
PB
V-1 CONV
WHIGHT
DET
C40
C9
C38
C44
C51
C31
C53
C47
REC/PB/EE
BUFFER
LPF
MUTE
LIMITER
VCO
PC
PRE EMP DE EMP
HOLD
NORM (L)
NORM (R)
ERASE BIAS OSC T1,Q1
C3
Q6
D1
R3
SVHS
Q11
ERASE
Q13
REC START
SWD 12V
Q10
FE ON
10 VIDEO I
R304 BIAS LEVEL
TP331
TP332
TP333
REC/PB HEAD
AUDIO ERASE
FULL ERASE
R305
FULL ERASE OSC T2,Q4,Q5
EQ
DOC DET
DOC
BIL CTL
L1
C11
L/MIX/R/SAP
REC/PB
SP/LP
S CASS
UNSW 12V
INV
S VHS EQ
SP EP
VHS EQ
PB AMP
IC1
HiFi MODE
REC/EE/PB CTL
NORM MODE
UNSW 5V
R76
R77
D8
EE (HiFi)
R303 PB LEVEL
10 VIDEO I
IC4
NORMAL MIX HiFi
LEFT STEREO RIGHT
MUTE
MIX
RF
LINE
RF AUDIO
R84
RCH/S/LCH
C27
D5
R25
HiFi/MIX/NORM
NORM at ADUB BY IC 4-18,17
FMA FF
PB HiFi MUTE
BPF 1
BPF 2
R35
R36
R37
R34
TP54 REC FM
R216 REC FM
Q205 Q206
D204
TP53
Q204
CN201
AUTO TRACKING FM
To 09 AUDIO CN1
Q16
R92
R95
VIDEO I
R302 EE BAL
10 VIDEO 1
R301 EE LEVEL
D12
CN6
TNR (L)
TNR (R)
From 14 DEMOD, CN201
24 CONTROL
UNSW 11V
CN3
VOL (+)
VOL (-)
BAL (L)
BAL (R)
BAL CTL
R404 20K REC
R405 100K BAL
43 REC AMP
IC201
R203,C208 DAMP ADJ
D13
MODE CTL
REC/EE/PB/ADUB
SWD 5V
R204
R217
Q203
TK AMP
SW1
SW2
SW3
SW4
CH1
CH2
EQ
AMP
AGC AMP
C205
C224
R201
C201
C207
C203
PB 5V
Q202
Q201
DAMP ADJ R202 C202
BPF 201
FMA FF
PB GAIN CTL R210
PB ON
REC/PB HEAD CH2
REC/PB HEAD CH1
04 AUDIO SW (A/S/M)
IC5
AUDIO (L)
AUDIO (R)
HEAD PHONE (L)
HEAD PHONE (R)
JA2
To 10 TERMINAL (VIDEO I) CN602
To 24 CONTROL CN6
To REAR (VARIABLE OUT)
ADJUSTABLE AMPLITUDE EQUALIZER SOUND CURVE
HI-BOOST
S.MENU OFF
S.ST
71 SOUND MENU
IC 5 D6,D7
FULL-WAVE RECTIFIER
R65 C63
R69 C64
K0 (L CH)
K1 (R CH)
DATA
INT
CLK
CN7
AUDIO S DATA
AUDIO S CLK
To 20 TIMER CN4
Q23
R76

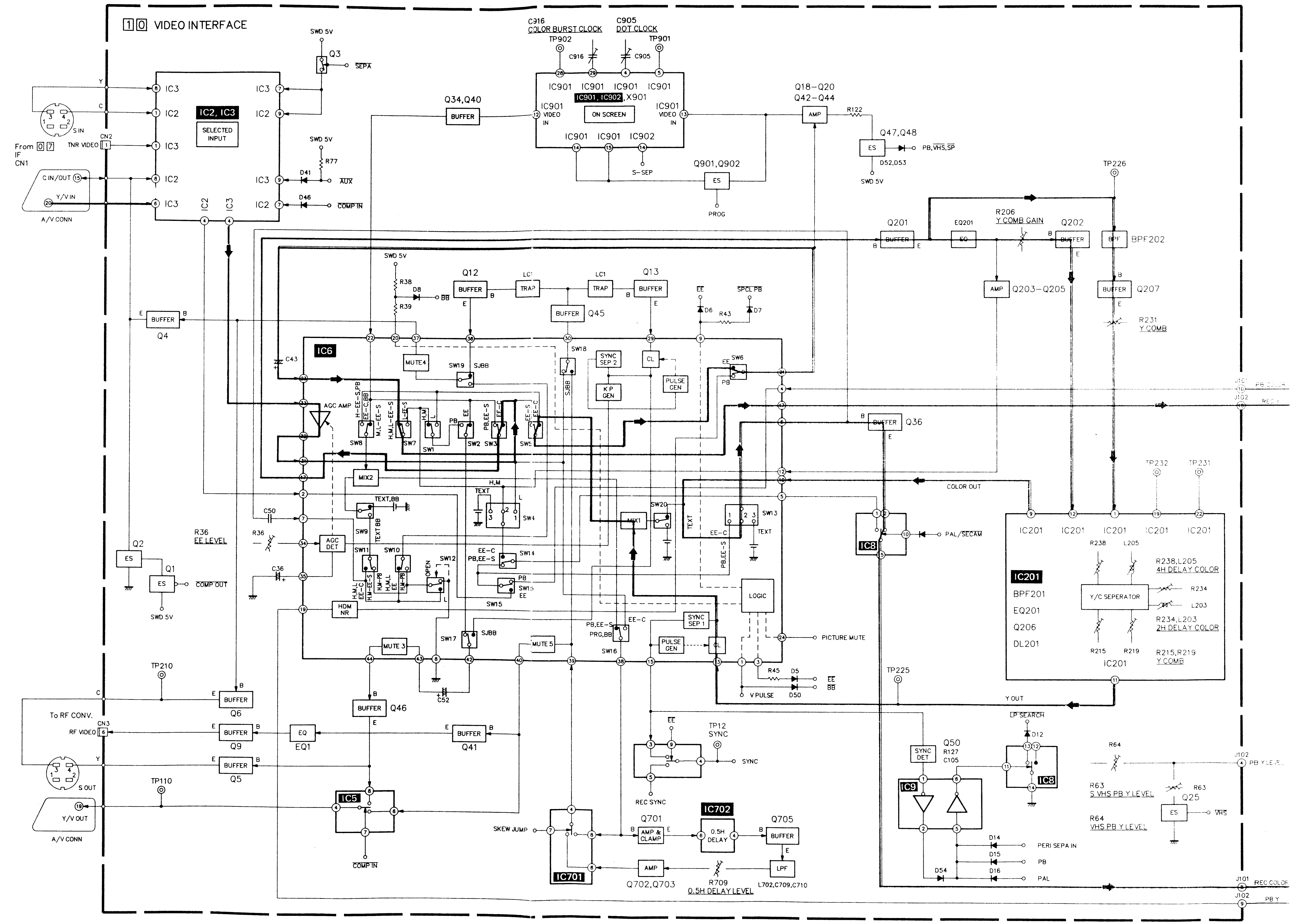
IC4

HiFi			MIX			NORM			PINS
REC	EE	PB	REC	EE	PB	REC	EE	PB	
L	L	H	L	L	H	L	L	H	60
L	M	H	L	M	H	L	M	H	35

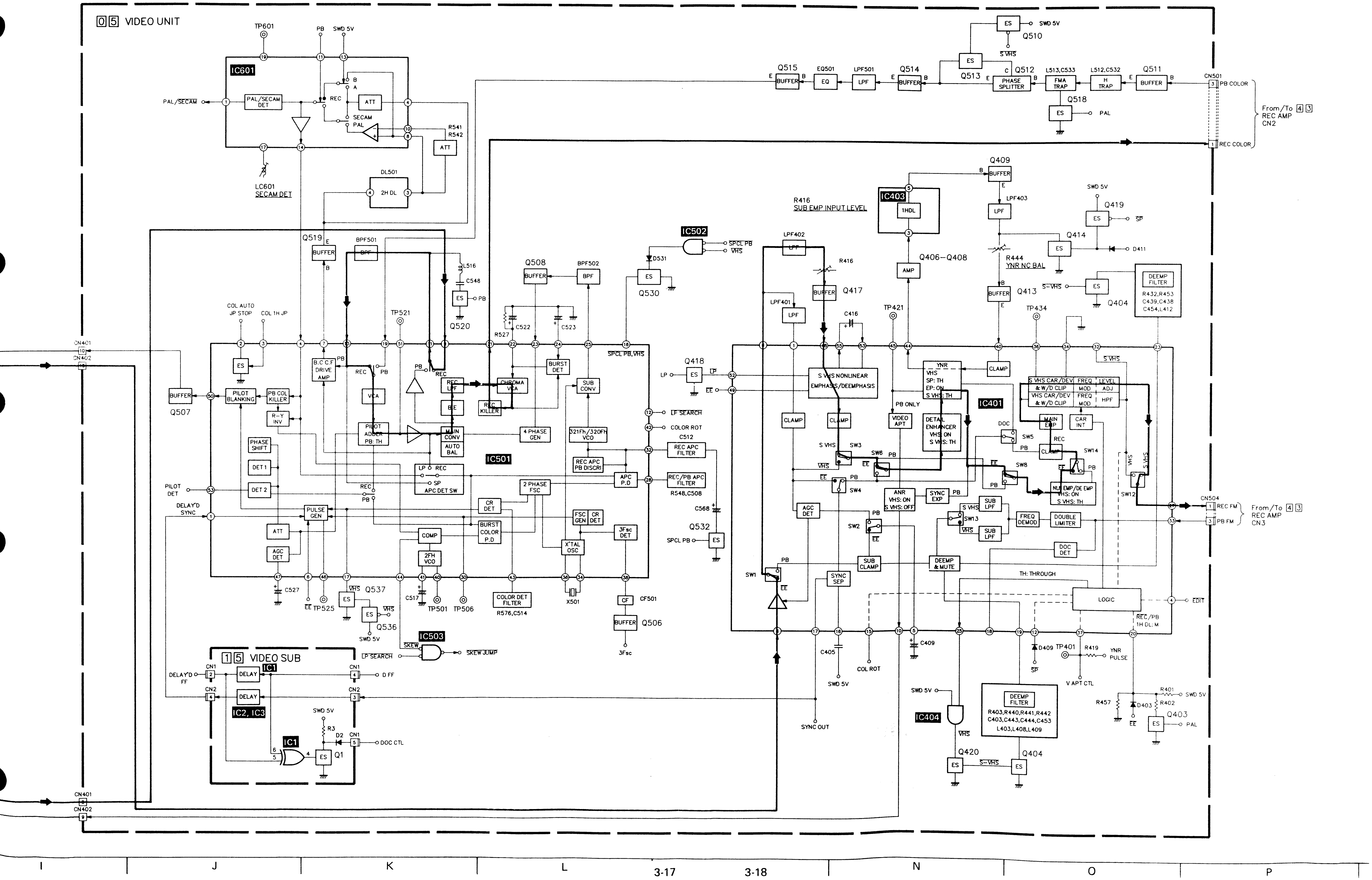
3.7 SERVO BLOCK DIAGRAM


0 4 SERVO (A/S/M)
SWD 5V
Vcc
CTL PULSE
CAP FG
SERIAL CLOCK
SERIAL DATA
COMP SYNC
V PULSE
YNR PULSE
DRUM FF
AUDIO FF
3 Fsc
DUTY I/O (INDEX)
CAP FG
CN403
CN404
SM3
SM2
MS12
MS11
MS13
MS16
D403
D402
From/To 0 4 MECHACON (A/S/M),
0 5 VIDEO UNIT CN502,
0 9 AUDIO UNIT CN10
COUNT DOWN
COUNT DOWN
SERIAL CLOCK
SERIAL DATA
SERIAL DECODER
NTSC MODE
FUNCTION MODE
SYNC SEP
SPCL PB
V PULSE
YNR PULSE
DRUM FF
AUDIO FF
REF 30HZ
3FSC
DUTY I/O
REC/PB CTL GEN.INDEX DET
CTL CLOCK
R405,C408
LPF
R404,C407
LPF
TL
Q401 R402 R403
CTL GAIN & FILTER
C403 C404 C405 R431
DRUM START
C402
SW D
AMP
SW A
REC: ON
Vcc/2
SW C
PB
REC
SW B
AMP
RECORDING TAPE
CTL HEAD
1 2 A/CTL HEAD
CN2
CN401
GND
DRUM START
P MUTE
DRUM FF Z V PULSE GEN.
C423
DRUM PG/FG
R425,C422
LPF
D411
DRUM SEL B
SWD 5V
R424,R426 C420,C421
ACTIVE FILTER
DIF AMP
DRUM GAIN
R422 R423
D406
DRUM F-V CONV
SW K
SW I
SPCL PB: ON
SW J
SPCL PB: ON
DRUM PHASE DET
DRUM REF
CAP REF
CAP PD FIX: ON
SW H
R420
NONLINEAR & PHASE LOOP FILTER
R417 R421 D407 C418 C419 D408
M: LOOP ON, L: CAP/DRUM PD FIX
CAP PHASE DET
R414
R415,C416,C417
PHASE LOOP FILTER
V. FM
CAP F-V CONV
IC401
SW G
SW F
SW E
CAP GAIN SW
R411 R412 R413
R409 R410
ACTIVE FILTER
C414 C415
R407
DIF AMP
SP
IC441
IC442
ES
Q441
R446
R449
SWD 5V
SLOW/STILL
R444
R441
R442
R443
Q442
R447
R448
R REV
HPF
R451,C452,C453 L451
AMP
S/H
VCA
TIM
OUT
GND
V/I
IC451
DRUM FF
D412
D404
D405
CN404
P MUTE
MS14
V PULSE
SW POINT ADJ
CN402
DRUM PG/FG
DRUM DRIVE
SM8
DRUM DRIVE
SM6
CTL CLOCK
AVG FM
SM4
AVG FM
PB FM
AUDIO FM
MS17
PAUSE
MS15
SERVO
SM7
CAP DRIVE
To 0 9 AUDIO UNIT CN10
From/To 0 4 MECHACON (A/S/M)
From 0 9 AUDIO UNIT CN10
From/To 5 8 DRUM MOTOR CN1
To 0 4 MECHACON (A/S/M)
To 0 9 AUDIO UNIT CN10
From/To 0 4 MECHACON (A/S/M)
From 0 5 VIDEO UNIT CN502
From 0 9 AUDIO UNIT CN10
From/To 0 4 MECHACON (A/S/M)

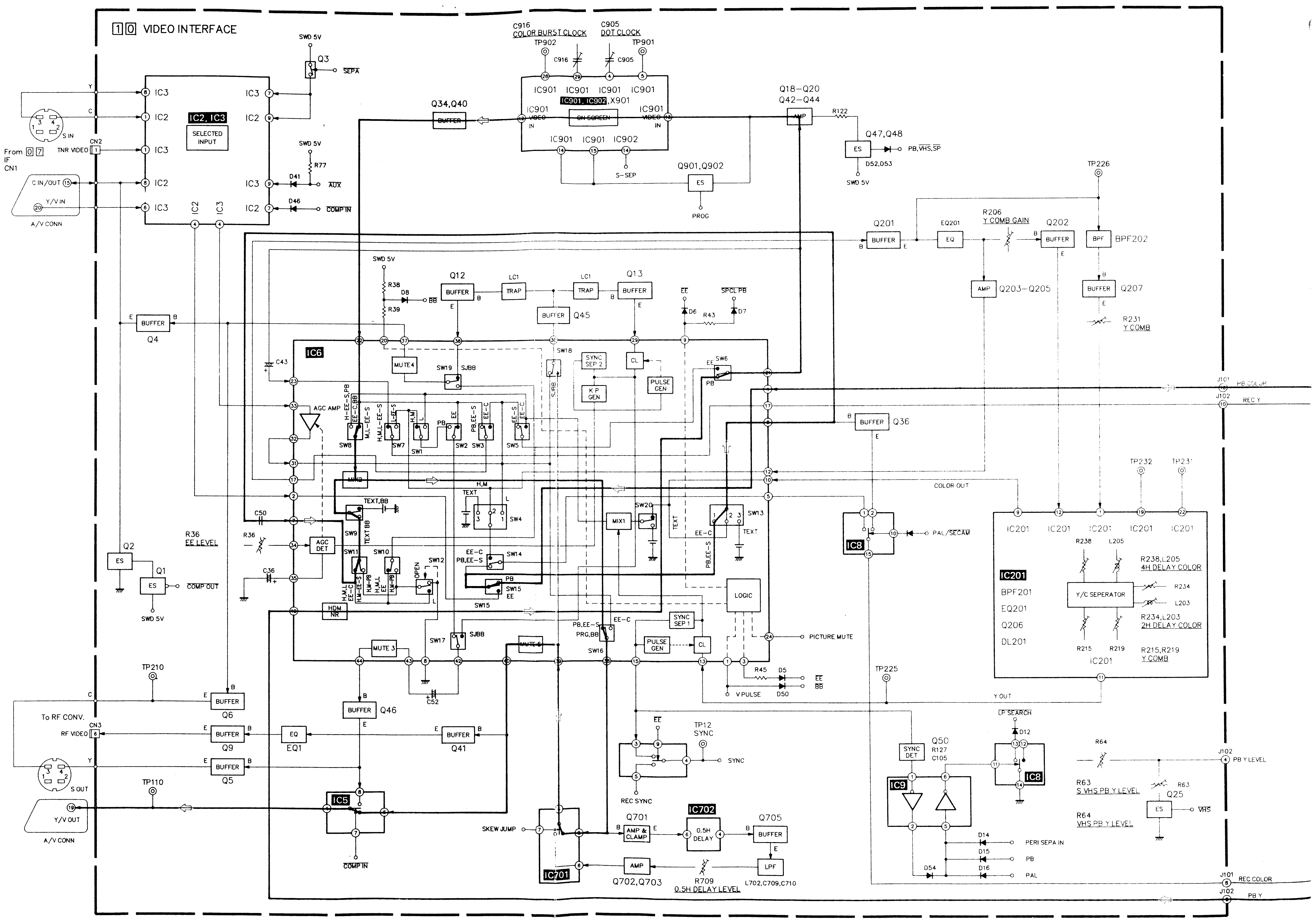
3.8 VIDEO BLOCK DIAGRAM (EE, REC)

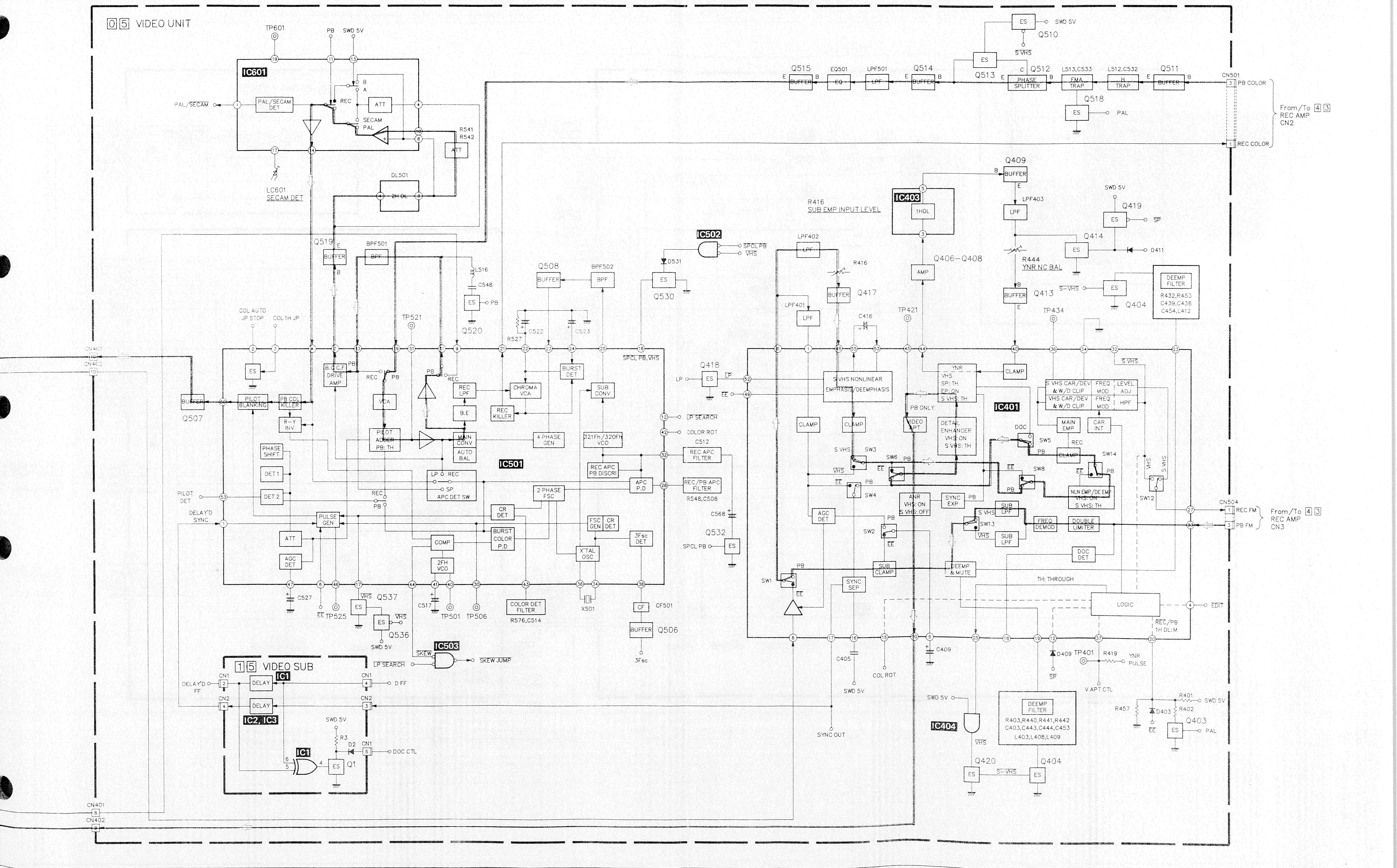


10 VIDEO INTERFACE
SWD 5V
Q3
SEPA
IC2, IC3
SELECTED INPUT
S IN
From 07 IF CN1
CN2
TNR VIDEO
C IN/OUT
Y/V IN
A/V CONN
R77
D41
AUX
D46
COMP IN
C916 COLOR BURST CLOCK
C905 DOT CLOCK
TP902
TP901
IC901, IC902, X901
ON SCREEN
IC901 VIDEO IN
IC901 VIDEO IN
IC902
S-SEP
Q34,Q40
BUFFER
Q901,Q902
ES
PROG
Q18–Q20
Q42–Q44
AMP
R122
Q47,Q48
PB,VHS,SP
D52,D53
TP226
Q201
EQ201
R206 Y COMB GAIN
Q202
BPF202
Q203–Q205
Q207
R231 Y COMB
Q12
LC1
TRAP
Q13
Q45
R38
D8
BB
R39
EE
SPCL PB
D6
R43
D7
Q4
IC6
C43
MUTE4
SW19
SJBB
SW18
SYNC SEP 2
KP GEN
CL
PULSE GEN
SW6
AGC AMP
SW8
SW7
SW1
SW2
SW3
SW5
Q36
MIX2
H,M
TEXT
SW4
TEXT,BB
C50
R36 EE LEVEL
AGC DET
SW9
SW11
SW10
SW12
OPEN
EE-C
PB,EE-S
SW14
SW15
C36
HDM NR
SW20
MIX1
SW13
IC8
PAL/SECAM
COLOR OUT
LOGIC
PICTURE MUTE
IC201
BPF201
EQ201
Q206
DL201
Y/C SEPERATOR
R238,L205 4H DELAY COLOR
R234,L203 2H DELAY COLOR
R215,R219 Y COMB
TP232
TP231
Q2
Q1
COMP OUT
MUTE 3
SW17
MUTE 5
PB,EE-S
PRG,BB
SW16
SYNC SEP 1
R45
D5
D50
V PULSE
TP225
Y OUT
TP210
Q6
To RF CONV.
CN3
RF VIDEO
Q46
C52
Q9
EQ
EQ1
Q41
Q5
S OUT
TP110
IC5
Y/V OUT
COMP IN
TP12 SYNC
SYNC
REC SYNC
SKEW JUMP
IC701
Q701
AMP & CLAMP
IC702
0.5H DELAY
Q705
LPF
Q702,Q703
R709 0.5H DELAY LEVEL
L702,C709,C710
LP SEARCH
D12
SYNC DET
Q50
R127
C105
IC9
D14
D15
D16
D54
PERI SEPA IN
PB
PAL
R64
R63 S VHS PB Y LEVEL
R64 VHS PB Y LEVEL
Q25
VHS
J102
J101
REC COLOR
PB Y
6
5
4
3
2
1
A
B
C
E
F
G

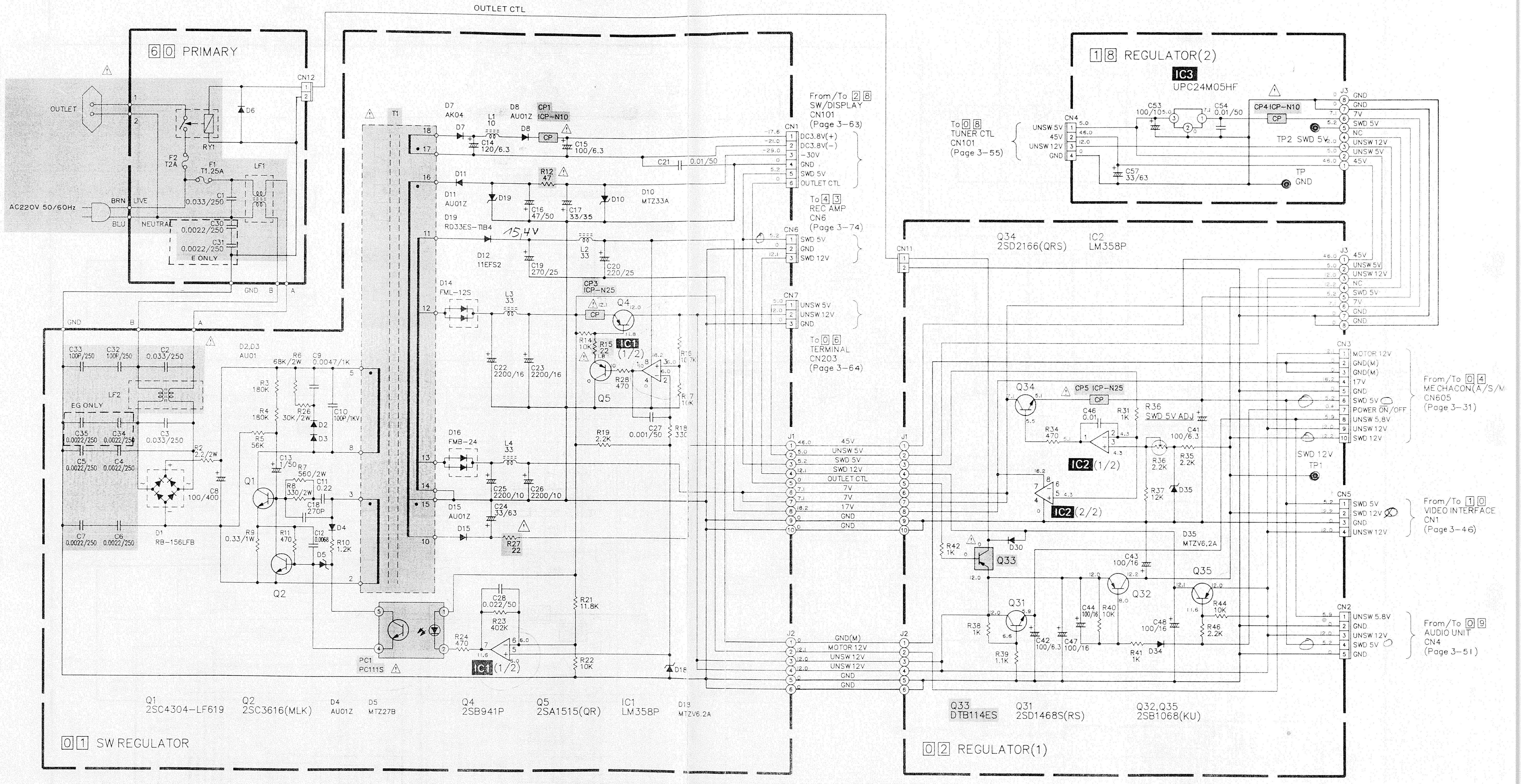

05 VIDEO UNIT
TP601
PB
SWD 5V
IC601
PAL/SECAM
PAL/SECAM DET
ATT
REC
SECAM
PAL
R541
R542
LC601
SECAM DET
DL501
2H DL
Q515
BUFFER
EQ501
EQ
LPF501
LPF
Q514
BUFFER
ES
SWD 5V
Q510
S VHS
Q513
Q512
PHASE SPLITTER
L513,C533
FMA TRAP
L512,C532
H TRAP
Q511
BUFFER
Q518
PAL
CN501
PB COLOR
REC COLOR
From/To 43 REC AMP CN2
Q409
IC403
1HDL
LPF403
SWD 5V
Q419
SP
Q414
D411
R416
SUB EMP INPUT LEVEL
IC502
SPCL PB
VHS
D531
Q530
LPF402
Q417
Q406–Q408
AMP
R444
YNR NC BAL
Q413
S-VHS
Q404
DEEMP FILTER
R432,R453
C439,C438
C454,L412
TP434
TP421
LPF401
C416
Q519
BPF501
BPF
L516
C548
Q520
Q508
BPF502
R527
C522
C523
TP521
COL AUTO JP STOP
COL 1H JP
CN401
CN402
BUFFER
Q507
PILOT BLANKING
PB COL KILLER
R–Y INV
B.C C.F DRIVE AMP
VCA
PILOT ADDER PB: TH
REC LPF
B.E
MAIN CONV
AUTO BAL
CHROMA VCA
REC KILLER
BURST DET
4 PHASE GEN
SUB CONV
321Fh/320Fh VCO
REC APC PB DISCRI
APC P.D
SPCL PB,VHS
LP SEARCH
COLOR ROT
C512
REC APC FILTER
REC/PB APC FILTER
R548,C508
IC501
PHASE SHIFT
DET 1
DET 2
LP
SP
APC DET SW
PILOT DET
DELAY'D SYNC
PULSE GEN
ATT
AGC DET
2 PHASE FSC
CR DET
BURST COLOR P.D
COMP
2FH VCO
FSC GEN
CR DET
X'TAL OSC
3Fsc DET
C568
Q532
C527
EE
TP525
Q537
Q536
C517
TP501
TP506
COLOR DET FILTER
R576,C514
X501
CF
CF501
Q506
3Fsc
IC503
SKEW
LP SEARCH
SKEW JUMP
15 VIDEO SUB
IC1
CN1
CN2
DELAY'D FF
DELAY
IC2, IC3
D FF
R3
D2
DOC CTL
Q1
Q418
S VHS NONLINEAR EMPHASIS/DEEMPHASIS
CLAMP
YNR
VHS
SP: TH
EP: ON
S VHS: TH
PB ONLY
VIDEO APT
DETAIL ENHANCER
VHS: ON
S VHS: TH
IC401
S VHS CAR/DEV & W/D CLIP
VHS CAR/DEV & W/D CLIP
FREQ MOD
LEVEL ADJ
HPF
MAIN EMP
CAR INT
DOC
SW5
SW14
SW8
SW6
SW3
SW4
SW2
SW1
SW12
SW13
NL EMP/DE EMP VHS: ON S VHS: TH
ANR VHS: ON S VHS: OFF
SYNC EXP
SUB LPF
FREQ DEMOD
DOUBLE LIMITER
DOC DET
AGC DET
SUB CLAMP
SYNC SEP
DEEMP & MUTE
TH: THROUGH
LOGIC
EDIT
REC/PB
1H DL: M
CN504
REC FM
PB FM
From/To 43 REC AMP CN3
C405
COL ROT
SWD 5V
C409
D409
TP401
R419
YNR PULSE
V APT CTL
SYNC OUT
IC404
Q420
DEEMP FILTER
R403,R440,R441,R442
C403,C443,C444,C453
L403,L408,L409
R401
R402
R457
D403
Q403
I
J
K
L
N
O
P

3.9 VIDEO BLOCK DIAGRAM (PB)


10 VIDEO INTERFACE
SWD 5V
Q3
SEPA
IC2, IC3
SELECTED INPUT
Y
C
S IN
From 07 IF CN1
CN2
TNR VIDEO
C IN/OUT
Y/V IN
A/V CONN
D41
D46
R77
AUX
COMP IN
C916 COLOR BURST CLOCK
C905 DOT CLOCK
TP902
TP901
IC901
IC901, IC902, X901
ON SCREEN
VIDEO IN
IC902
S-SEP
Q901,Q902
ES
PROG
Q34,Q40
BUFFER
Q18–Q20
Q42–Q44
AMP
R122
Q47,Q48
PB,VHS,SP
D52,D53
TP226
Q201
EQ201
EQ
R206
Y COMB GAIN
Q202
BPF
BPF202
Q207
AMP
Q203–Q205
R231
Y COMB
SWD 5V
R38
R39
D8
BB
Q12
LC1
TRAP
Q13
Q45
EE
SPCL PB
D6
D7
R43
IC6
MUTE4
SW19
SJBB
SW18
SYNC SEP 2
K.P GEN
CL
PULSE GEN
SW6
EE
PB
Q4
C43
AGC AMP
SW8
SW7
SW1
SW2
SW3
SW5
H,M
PB,EE-S
EE-C
MIX2
TEXT,BB
TEXT
SW4
SW9
C50
R36
EE LEVEL
AGC DET
SW11
SW10
SW12
OPEN
C36
HDM NR
MIX1
SW20
SW13
EE-C
PB,EE-S
SW14
SW15
PB
EE
LOGIC
PICTURE MUTE
SYNC SEP 1
SW16
PB,EE-S
PRG,BB
PULSE GEN
SW17
MUTE 3
MUTE 5
R45
D5
V PULSE
D50
Q2
Q1
COMP OUT
SWD 5V
Q36
J101 PB COLOR
J102 REC Y
COLOR OUT
TP232
TP231
IC8
PAL/SECAM
IC201
BPF201
EQ201
Q206
DL201
R238
L205
R238,L205
4H DELAY COLOR
Y/C SEPERATOR
R234
L203
R234,L203
2H DELAY COLOR
R215
R219
R215,R219
Y COMB
Y OUT
TP225
TP210
Q6
To RF CONV.
CN3
RF VIDEO
Q9
EQ1
Q41
Q46
Q5
S OUT
TP110
Y/V OUT
IC5
COMP IN
TP12
SYNC
REC SYNC
SKEW JUMP
IC701
Q701
AMP & CLAMP
IC702
0.5H DELAY
Q705
LPF
Q702,Q703
R709
0.5H DELAY LEVEL
L702,C709,C710
C52
SYNC DET
Q50
R127
C105
IC9
LP SEARCH
D12
D14
D15
D16
D54
PERI SEPA IN
PAL
R64
R63
S VHS PB Y LEVEL
Q25
VHS
R64
VHS PB Y LEVEL
J102 PB Y LEVEL
J101 REC COLOR
J102 PB Y

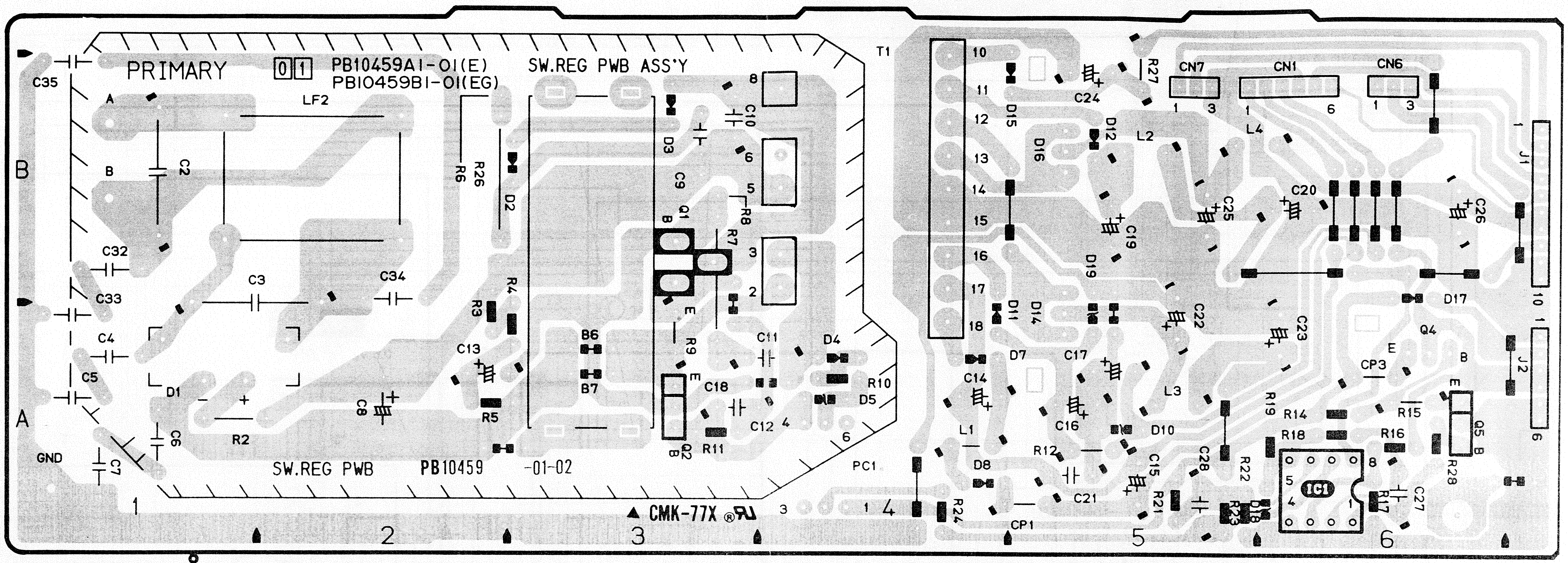

05 VIDEO UNIT
IC601
TP601
PB
SWD 5V
PAL/SECAM
PAL/SECAM DET
REC
ATT
SECAM
PAL
R541
R542
LC601 SECAM DET
DL501
2H DL
Q519
BUFFER
BPF501
BPF
L516
C548
ES
Q520
Q508
BPF502
COL AUTO 1P STOP
COL 1H 1P
TP521
R527
C522
C523
SPCL PB, VHS
CN401
CN402
Q507
PILOT BLANKING
PB COL KILLER
R-Y INV
PHASE SHIFT
DET 1
DET 2
PILOT DET
DELAY'D SYNC
PULSE GEN
ATT
AGC DET
B.C.C.F DRIVE AMP
VCA
PILOT ADDER PB: TH
REC LPF
B.E
MAIN CONV
AUTO BAL
REC KILLER
CHROMA VCA
BURST DET
SUB CONV
4 PHASE GEN
321Fh/320Fh VCO
REC APC PB DISCRI
APC P.D
2 PHASE FSC
LP REC SP
APC DET SW
CR DET
BURST COLOR P.D
COMP
2FH VCO
FSC GEN
CR DET
X'TAL OSC
3Fsc DET
IC501
LP SEARCH
COLOR ROT
C512
REC APC FILTER
REC/PB APC FILTER
R548, C508
C568
Q532
SPCL PB
C527
TP525
Q537
Q536
C517
TP501
TP506
COLOR DET FILTER
R576, C514
X501
CF
CF501
BUFFER
Q506
3Fsc
IC503
SKEW
SKEW JUMP
15 VIDEO SUB
IC1
DELAY
IC2, IC3
DELAY'D FF
CN1
CN2
D FF
SWD 5V
R3
D2
Q1
DOC CTL
IC502
SPCL PB
VHS
D531
Q530
Q418
LP
EE
Q515
EQ501
EQ
LPF501
LPF
Q514
Q513
PHASE SPLITTER
Q512
L513, C533
FMA TRAP
L512, C532
H TRAP
Q511
Q510
S VHS
Q518
PAL
CN501
PB COLOR
REC COLOR
From/To 43 REC AMP CN2
Q409
IC403
1HDL
R416 SUB EMP INPUT LEVEL
LPF402
LPF401
Q417
C416
TP421
Q406–Q408
AMP
LPF403
R444 YNR NC BAL
Q413
TP434
SWD 5V
Q419
SP
Q414
D411
S-VHS
Q404
DEEMP FILTER
R432, R453
C439, C438
C454, L412
S VHS NONLINEAR EMPHASIS/DEEMPHASIS
YNR VHS SP: TH EP: ON S VHS: TH
CLAMP
IC401
S VHS CAR/DEV & W/D CLIP
VHS CAR/DEV & W/D CLIP
FREQ MOD
LEVEL ADJ
HPF
PB ONLY
VIDEO APT
DETAIL ENHANCER VHS: ON S VHS: TH
MAIN EMP
CAR INT
DOC
SW5
SW14
SW3
SW6
SW8
SW4
SW2
SW1
SW12
SW13
ANR VHS: ON S VHS: OFF
SYNC EXP
NLN EMP/DE EMP VHS: ON S VHS: TH
AGC DET
SUB LPF
FREQ DEMOD
DOUBLE LIMITER
DOC DET
SUB CLAMP
DEEMP & MUTE
SYNC SEP
TH: THROUGH
LOGIC
EDIT
REC/PB 1H DL: M
CN504
REC FM
PB FM
From/To 43 REC AMP CN3
C405
C409
SWD 5V
COL ROT
D409
TP401
R419
YNR PULSE
V APT CTL
SYNC OUT
IC404
DEEMP FILTER R403, R440, R441, R442 C403, C443, C444, C453 L403, L408, L409
Q420
Q404
R457
D403
R401
R402
Q403
PAL

3.10 SW REG, REGULATOR (1), (2) AND PRIMARY SCHEMATIC DIAGRAMS

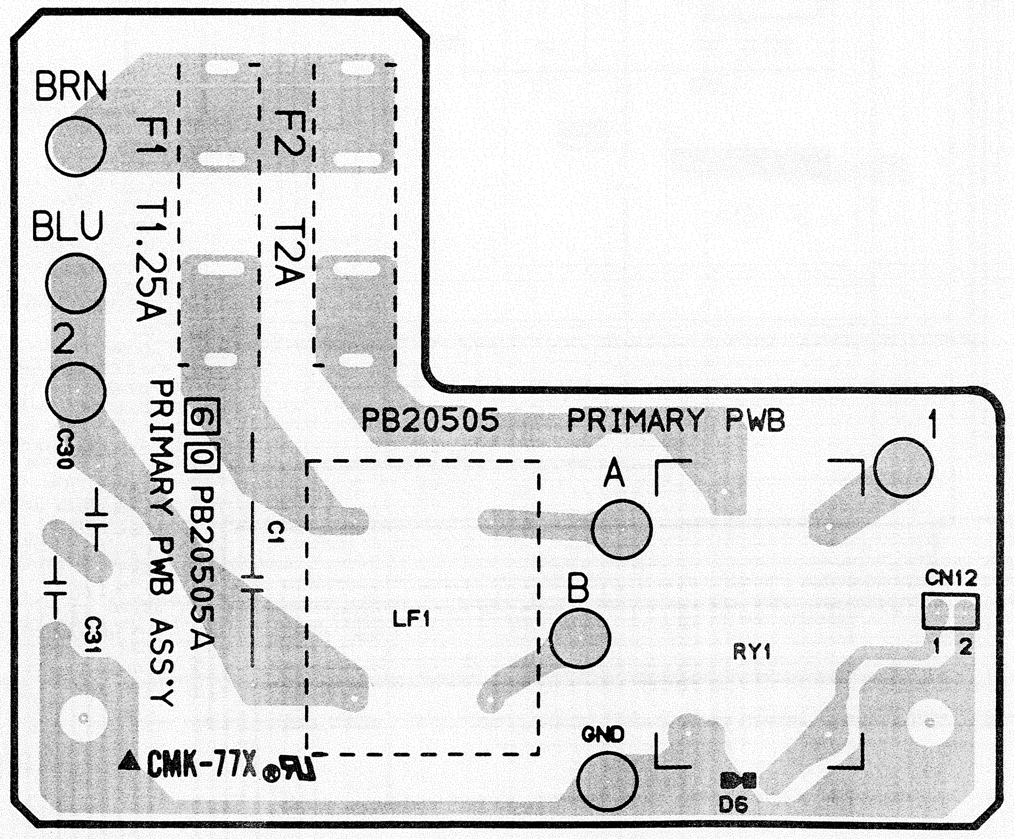

OUTLET CTL
60 PRIMARY
OUTLET
RY1
D6
CN12
F2 T2A
F1 T1.25A
LF1
C1 0.033/250
AC220V 50/60Hz
BRN LIVE
BLU NEUTRAL
C30 0.0022/250
C31 0.0022/250
E ONLY
GND B A
T1
D7 AK04
L1 10
D8 AU01Z
CP1 ICP-N10
C14 120/6.3
C15 100/6.3
C21 0.01/50
R12 47
D11 AU01Z
D19 RO33ES-T1B4
C16 47/50
C17 33/35
D10 MTZ33A
15.4V
D12 11EFS2
C19 270/25
L2 33
C20 220/25
D14 FML-12S
L3 33
CP3 ICP-N25
Q4
C22 2200/16
C23 2200/16
R14 10K
R15 22
IC1 (1/2)
R16 10.7K
R28 470
R17 10K
Q5
R19 2.2K
C27 0.001/50
R18 330
D16 FMB-24
L4 33
C25 2200/10
C26 2200/10
D15 AU01Z
C24 33/63
R27 22
C33 100P/250
C32 100P/250
C2 0.033/250
LF2
EG ONLY
C35 0.0022/250
C34 0.0022/250
C3 0.033/250
C5 0.0022/250
C4 0.0022/250
C7 0.0022/250
C6 0.0022/250
D2,D3 AU01
R6 68K/2W
C9 0.0047/1K
R3 180K
R4 180K
R26 30K/2W
C10 100P/1KV
R5 56K
R2 2.2/2W
C8 100/400
C13 1/50
R7 560/2W
R8 330/2W
C11 0.22
C18 270P
Q1
R9 0.33/1W
R11 470
C12 0.0068
D4
R10 1.2K
D5
Q2
D1 RB-156LFB
PC1 PC111S
C28 0.022/50
R23 402K
R24 470
R21 11.8K
R22 10K
D18
Q1 2SC4304-LF619
Q2 2SC3616(MLK)
D4 AU01Z
D5 MTZ27B
Q4 2SB941P
Q5 2SA1515(QR)
IC1 LM358P
D18 MTZV6.2A
01 SW REGULATOR
From/To 28 SW/DISPLAY CN101 (Page 3-63)
CN1
DC3.8V(+)
DC3.8V(-)
-30V
GND
SWD 5V
OUTLET CTL
To 43 REC AMP CN6 (Page 3-74)
CN6
SWD 5V
GND
SWD 12V
CN7
UNSW 5V
UNSW 12V
GND
To 06 TERMINAL CN203 (Page 3-64)
J1
45V
UNSW 5V
SWD 5V
SWD 12V
OUTLET CTL
7V
7V
17V
GND
GND
J2
GND(M)
MOTOR 12V
UNSW 12V
UNSW 12V
GND
GND
CN11
18 REGULATOR(2)
IC3 UPC24M05HF
CN4
C53 100/10
C54 0.01/50
CP4 ICP-N10
To 08 TUNER CTL CN101 (Page 3-55)
UNSW 5V
45V
UNSW 12V
GND
TP2 SWD 5V
C57 33/63
TP GND
J3
GND
GND
7V
SWD 5V
NC
UNSW 12V
UNSW 5V
45V
Q34 2SD2166(QRS)
IC2 LM358P
CN3
MOTOR 12V
GND(M)
GND(M)
17V
GND
SWD 5V
POWER ON/OFF
UNSW 5.8V
UNSW 12V
SWD 12V
From/To 04 MECHACON(A/S/M) CN605 (Page 3-31)
Q34
CP5 ICP-N25
C46 0.01
R31 1K
R36 SWD 5V ADJ
R34 470
C41 100/6.3
IC2 (1/2)
R36 2.2K
R35 2.2K
R37 12K
D35
IC2 (2/2)
SWD 12V TP1
CN5
SWD 5V
SWD 12V
GND
UNSW 12V
From/To 10 VIDEO INTERFACE CN1 (Page 3-46)
R42 1K
D30
Q33
D35 MTZV6.2A
C43 100/16
Q35
Q32
Q31
R44 10K
R46 2.2K
C44 100/16
R40 10K
C48 100/16
R38 1K
C42 100/6.3
C47 100/16
R39 1.1K
R41 1K
D34
CN2
UNSW 5.8V
GND
UNSW 12V
SWD 5V
GND
From/To 09 AUDIO UNIT CN4 (Page 3-51)
Q33 DTB114ES
Q31 2SD1468S(RS)
Q32,Q35 2SB1068(KU)
02 REGULATOR(1)

3.11 SW REG, REGULATOR (1), (2) AND PRIMARY CIRCUIT BOARDS

– SW REG –

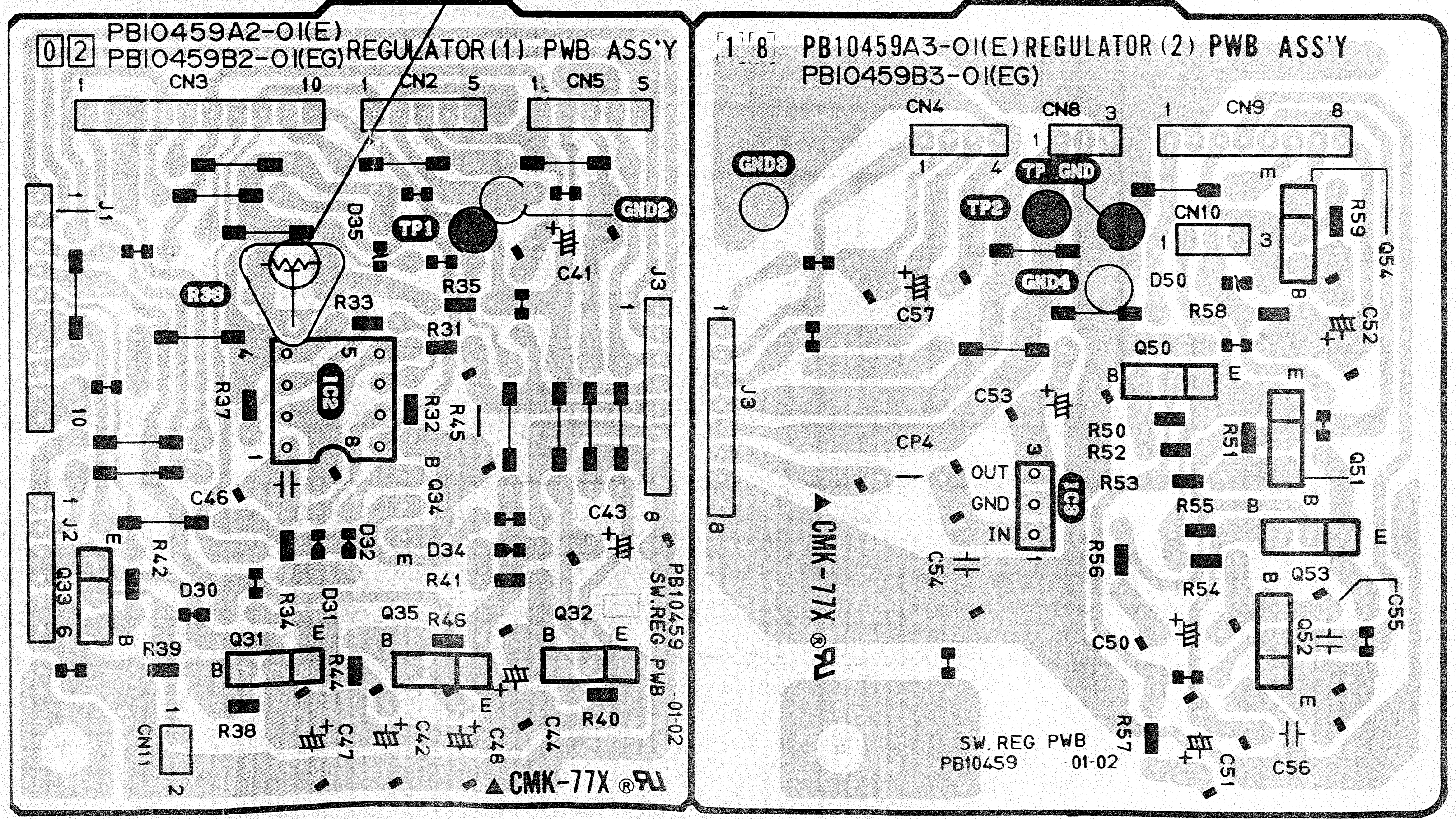

PRIMARY
0 1 PB10459A1-01(E)
PB10459B1-01(EG)
SW.REG PWB ASS'Y
SW.REG PWB PB10459 -01-02
CMK-77X
LF2
T1
PC1
CP1
IC1
CN7
CN1
CN6
J1
J2
GND
C35
C32
C33
C3
C34
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
C17
C18
C19
C20
C21
C22
C23
C24
C25
C26
C27
C28
D1
D2
D3
D4
D5
D7
D8
D10
D11
D12
D14
D15
D16
D17
D19
Q1
Q2
Q4
Q5
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R14
R15
R16
R17
R18
R19
R21
R22
R24
R26
R27
R28
B6
B7
L1
L2
L3
L4
CP3

– PRIMARY –

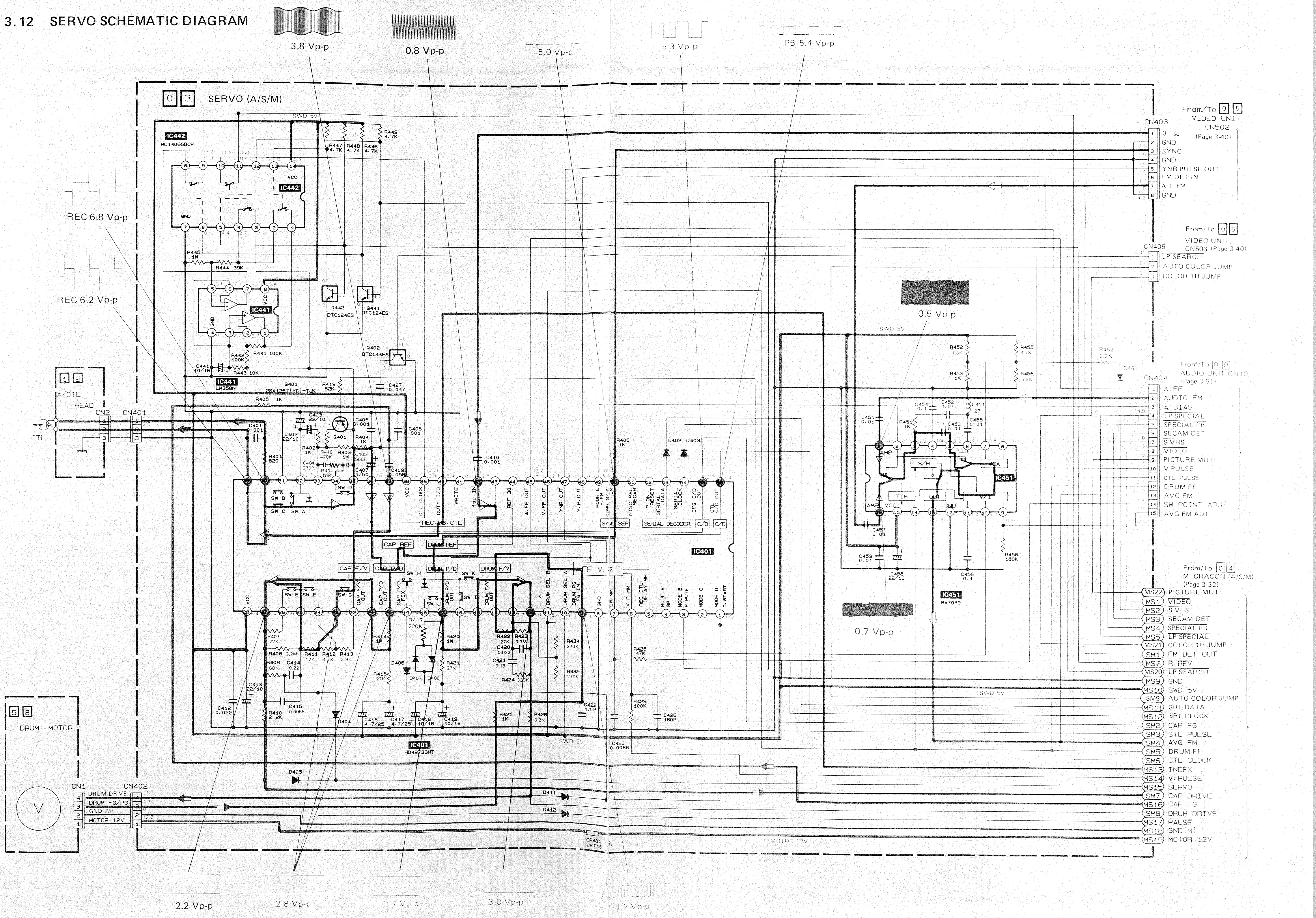

BRN
BLU
F1 T1.25A
F2 T2A
6 0 PB20505A
PRIMARY PWB ASS'Y
PB20505 PRIMARY PWB
CMK-77X
C1
C30
C31
LF1
RY1
CN12
D6
A
B
GND
1
2

– REGULATOR (1), (2) –

R36
SWD 5V ADJ

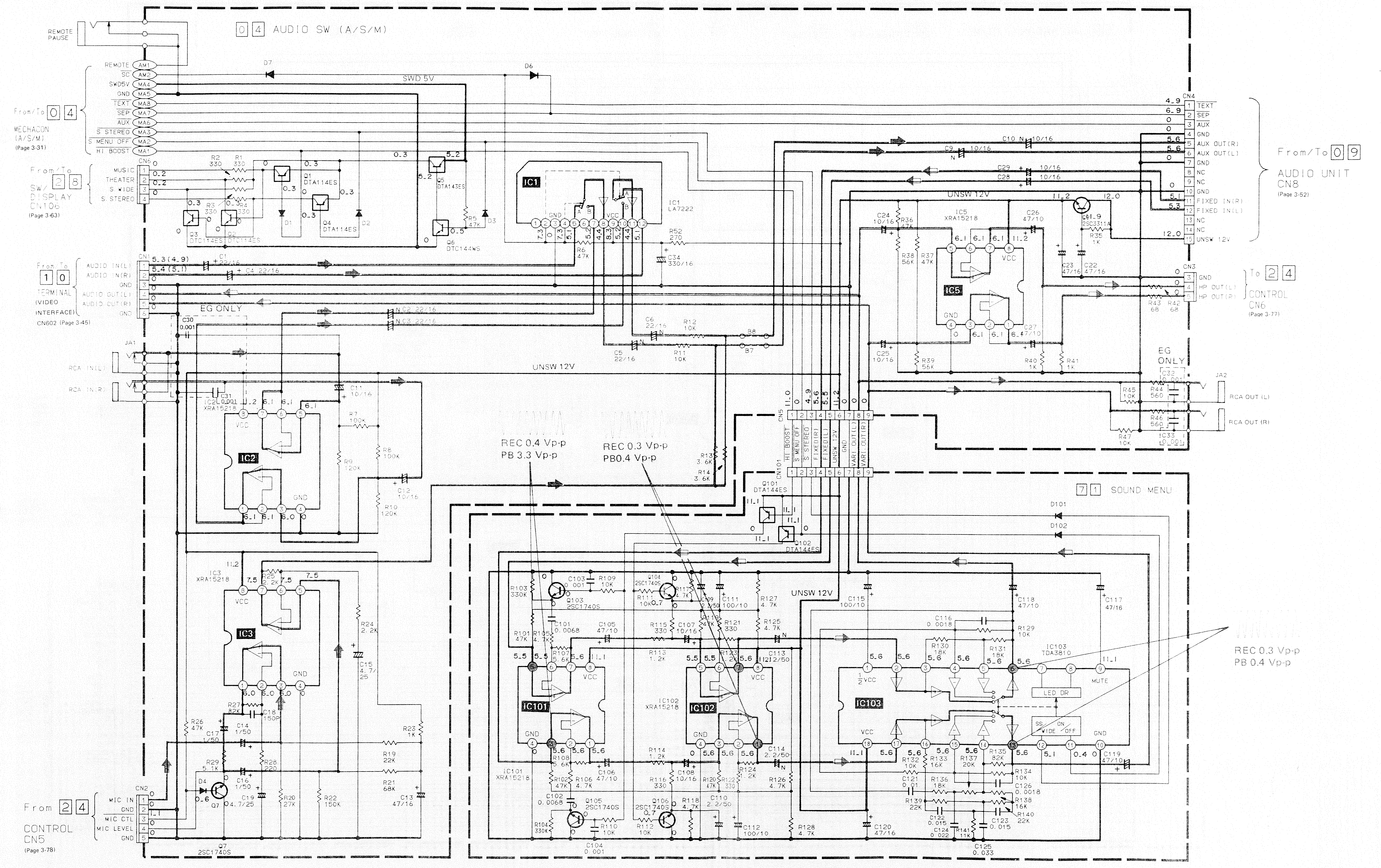

0 2 PB10459A2-01(E)
PB10459B2-01(EG)
REGULATOR (1) PWB ASS'Y
1 8 PB10459A3-01(E) REGULATOR (2) PWB ASS'Y
PB10459B3-01(EG)
PB10459 SW.REG PWB -01-02
SW.REG PWB PB10459 01-02
CMK-77X
CN2
CN3
CN4
CN5
CN8
CN9
CN10
CN11
J1
J2
J3
IC2
IC3
OUT
GND
IN
TP1
TP2
TP GND
GND2
GND3
GND4
CP4
R31
R32
R33
R34
R35
R36
R37
R38
R39
R40
R41
R42
R44
R45
R46
R50
R51
R52
R53
R54
R55
R56
R57
R58
R59
C41
C42
C43
C44
C46
C47
C48
C50
C51
C52
C53
C54
C55
C56
C57
D30
D31
D32
D34
D35
D50
Q31
Q32
Q33
Q34
Q35
Q50
Q51
Q52
Q53
Q54

3.12 SERVO SCHEMATIC DIAGRAM

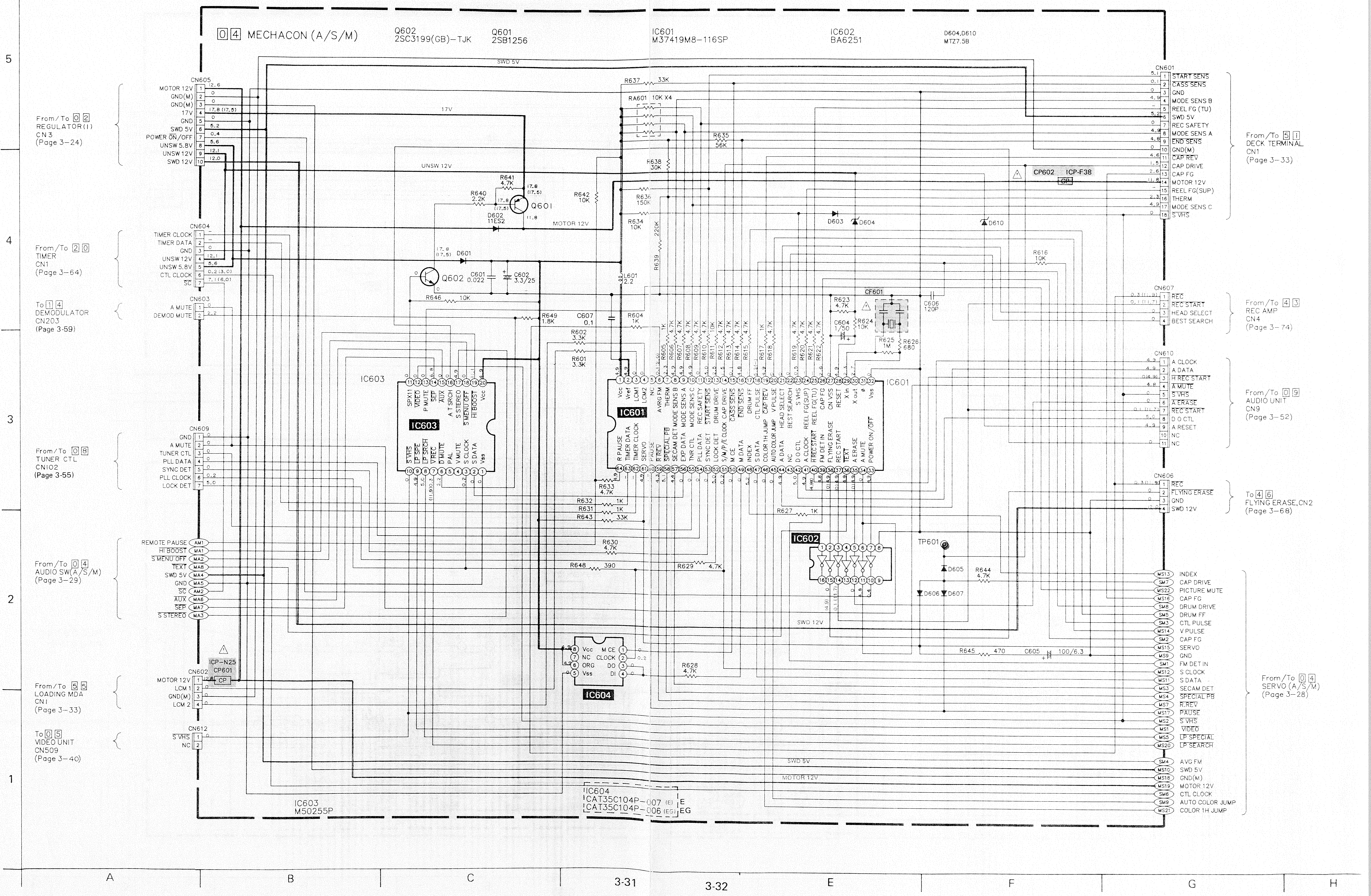


3.8 Vp-p
0.8 Vp-p
5.0 Vp-p
5.3 Vp-p
PB 5.4 Vp-p
03 SERVO (A/S/M)
SWD 5V
IC442 MC14066BCP
IC441 LM358N
IC401 HD49733NT
IC451 BA7039
REC 6.8 Vp-p
REC 6.2 Vp-p
12 A/CTL HEAD
CTL
CN2
CN401
58 DRUM MOTOR
M
CN1
CN402
DRUM DRIVE
DRUM FG/PG
GND (M)
MOTOR 12V
Q401 2SA1257(Y6)-TJK
Q402 DTC144ES
Q442 DTC124ES
Q441 DTC124ES
REC. PB. CTL
SYNC SEP
SERIAL DECODER
C/D
CAP REF
DRUM REF
CAP F/V
CAP P/D
DRUM P/D
DRUM F/V
FF V.P
0.5 Vp-p
0.7 Vp-p
S/H
TIM
VCA
AMP
VCC
GND
From/To 05 VIDEO UNIT CN502 (Page 3-40)
CN403
3 Fsc
GND
SYNC
GND
YNR PULSE OUT
FM DET IN
A 1 FM
GND
From/To 05 VIDEO UNIT CN506 (Page 3-40)
CN405
LP SEARCH
AUTO COLOR JUMP
COLOR 1H JUMP
From/To 09 AUDIO UNIT CN10 (Page 3-51)
CN404
A FF
AUDIO FM
A BIAS
LP SPECIAL
SPECIAL PB
SECAM DET
S VHS
VIDEO
PICTURE MUTE
V PULSE
CTL PULSE
DRUM FF
AVG FM
SW POINT ADJ
AVG FM ADJ
From/To 04 MECHACON (A/S/M) (Page 3-32)
MS22 PICTURE MUTE
MS1 VIDEO
MS2 S VHS
MS3 SECAM DET
MS4 SPECIAL PB
MS5 LP SPECIAL
MS21 COLOR 1H JUMP
SM1 FM DET OUT
MS7 R REV
MS20 LP SEARCH
MS9 GND
MS10 SWD 5V
SM9 AUTO COLOR JUMP
MS11 SRL DATA
MS12 SRL CLOCK
SM2 CAP FG
SM3 CTL PULSE
SM4 AVG FM
SM5 DRUM FF
SM6 CTL CLOCK
MS13 INDEX
MS14 V. PULSE
MS15 SERVO
SM7 CAP DRIVE
MS16 CAP FG
SM8 DRUM DRIVE
MS17 PAUSE
MS18 GND (M)
MS19 MOTOR 12V
CP401 ICP-F15
MOTOR 12V
D405
D411
D412
2.2 Vp-p
2.8 Vp-p
2.7 Vp-p
3.0 Vp-p
4.2 Vp-p

3.13 AUDIO SW AND SOUND MENU SCHEMATIC DIAGRAMS

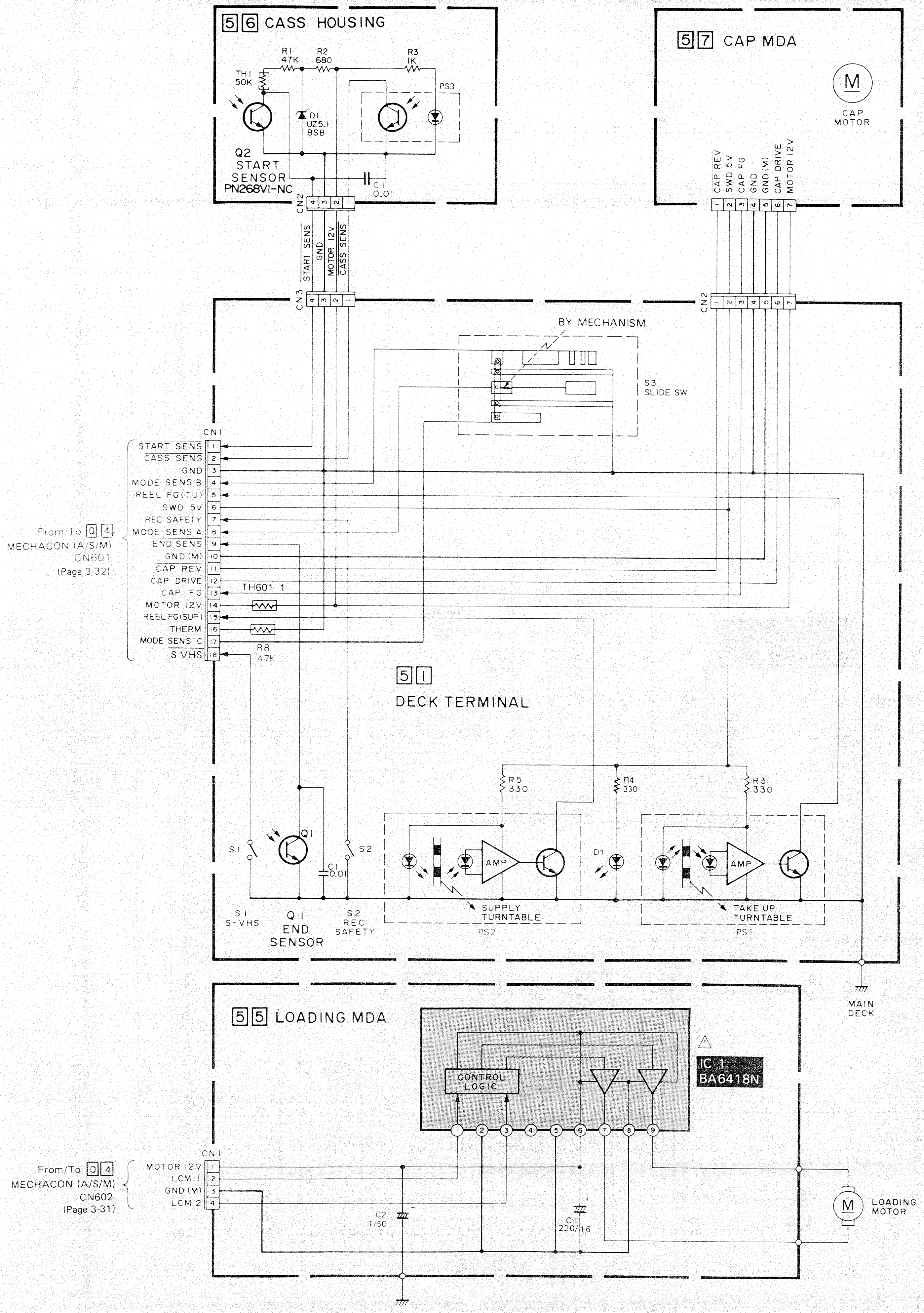

0 4 AUDIO SW (A/S/M)
7 1 SOUND MENU
REMOTE PAUSE
From/To 0 4 MECHACON (A/S/M) (Page 3-31)
REMOTE AM1
SC AM2
SWD5V MA4
GND MA5
TEXT MA8
SEP MA7
AUX MA6
S STEREO MA3
S MENU OFF MA2
HI BOOST MA1
From/To 2 8 SW/DISPLAY CN106 (Page 3-63)
MUSIC
THEATER
S. WIDE
S. STEREO
From/To 1 0 TERMINAL (VIDEO INTERFACE) CN602 (Page 3-45)
AUDIO IN(L)
AUDIO IN(R)
GND
AUDIO OUT(L)
AUDIO OUT(R)
EG ONLY
RCA IN(L)
RCA IN(R)
IC1 LA7222
IC2 XRA15218
IC3 XRA15218
IC5 XRA15218
Q1 DTA114ES
Q2 DTC114ES
Q3 DTC114ES
Q4 DTA114ES
Q5 DTA143ES
Q6 DTC144WS
Q7 2SC1740S
Q1 2SC3311A
SWD 5V
UNSW 12V
CN4
TEXT
SEP
AUX
GND
AUX OUT(R)
AUX OUT(L)
GND
NC
NC
GND
FIXED IN(R)
FIXED IN(L)
NC
NC
UNSW 12V
From/To 0 9 AUDIO UNIT CN8 (Page 3-52)
CN3
GND
HP OUT(L)
HP OUT(R)
To 2 4 CONTROL CN6 (Page 3-77)
JA2
RCA OUT (L)
RCA OUT (R)
CN5
HI BOOST
S MENU OFF
S STEREO
FIXED(R)
FIXED(L)
UNSW 12V
GND
VARI OUT(L)
VARI OUT(R)
CN101
Q101 DTA144ES
Q102 DTA144ES
D101
D102
REC 0.4 Vp-p
PB 3.3 Vp-p
REC 0.3 Vp-p
PB0.4 Vp-p
REC 0.3 Vp-p
PB 0.4 Vp-p
IC101 XRA15218
IC102 XRA15218
IC103 TDA3810
Q103 2SC1740S
Q104 2SC1740S
Q105 2SC1740S
Q106 2SC1740S
LED DR
MUTE
SS ON WIDE OFF
From 2 4 CONTROL CN5 (Page 3-78)
MIC IN
GND
MIC CTL
MIC LEVEL
GND
A
B
C
E
F
G
H
1
2
3
4
5
6

3.14 SYSTEM CTL SCHEMATIC DIAGRAM



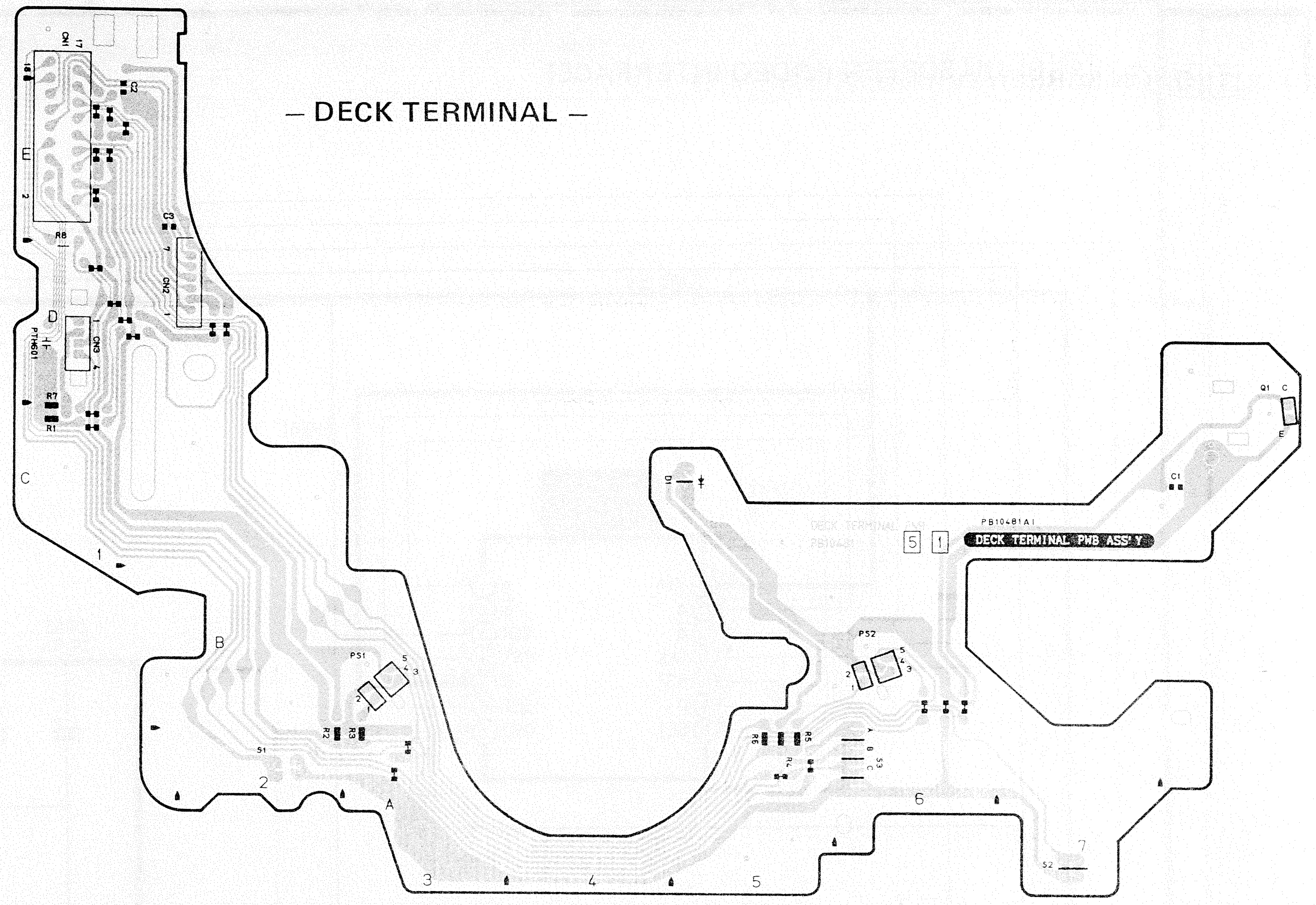
6
5
4
3
2
1
A
B
C
E
F
G
H
04 MECHACON (A/S/M)
Q602
2SC3199(GB)–TJK
Q601
2SB1256
IC601
M37419M8–116SP
IC602
BA6251
D604,D610
MTZ7.5B
SWD 5V
CN605
MOTOR 12V
GND(M)
GND(M)
17V
GND
SWD 5V
POWER ON/OFF
UNSW 5.8V
UNSW 12V
SWD 12V
From/To 02
REGULATOR(1)
CN3
(Page 3–24)
CN604
TIMER CLOCK
TIMER DATA
GND
UNSW 12V
UNSW 5.8V
CTL CLOCK
SC
From/To 20
TIMER
CN1
(Page 3–64)
CN603
A MUTE
DEMOD MUTE
To 14
DEMODULATOR
CN203
(Page 3-59)
CN609
GND
A MUTE
TUNER CTL
PLL DATA
SYNC DET
PLL CLOCK
LOCK DET
From/To 08
TUNER CTL
CN102
(Page 3-55)
REMOTE PAUSE
HI BOOST
S MENU OFF
TEXT
SWD 5V
GND
SC
AUX
SEP
S STEREO
From/To 04
AUDIO SW(A/S/M)
(Page 3–29)
ICP–N25
CP601
CN602
MOTOR 12V
LCM 1
GND(M)
LCM 2
From/To 55
LOADING MDA
CN1
(Page 3–33)
CN612
S VHS
NC
To 05
VIDEO UNIT
CN509
(Page 3–40)
17V
UNSW 12V
MOTOR 12V
R641 4.7K
R640 2.2K
D602 11ES2
Q601
R642 10K
D601
Q602
C601 0.022
C602 3.3/25
R646 10K
R649 1.8K
C607 0.1
R602 3.3K
R601 3.3K
R637 33K
RA601 10K X4
R638 30K
R636 150K
R635 56K
R634 10K
R639 220K
L601 2.2
R604 1K
IC603
IC601
R633 4.7K
R632 1K
R631 1K
R643 33K
R630 4.7K
R648 390
R629 4.7K
R627 1K
IC602
IC604
R628 4.7K
Vcc
NC
ORG
Vss
M CE
CLOCK
DO
DI
CP602 ICP-F38
D603
D604
D610
R616 10K
CF601
R623 4.7K
C604 1/50
R624 10K
R625 1M
R626 680
C606 120P
TP601
D605
D606
D607
R644 4.7K
R645 470
C605 100/6.3
SWD 12V
SWD 5V
MOTOR 12V
CN601
START SENS
CASS SENS
GND
MODE SENS B
REEL FG (TU)
SWD 5V
REC SAFETY
MODE SENS A
END SENS
GND(M)
CAP REV
CAP DRIVE
CAP FG
MOTOR 12V
REEL FG(SUP)
THERM
MODE SENS C
S VHS
From/To 51
DECK TERMINAL
CN1
(Page 3–33)
CN607
REC
REC START
HEAD SELECT
BEST SEARCH
From/To 43
REC AMP
CN4
(Page 3–74)
CN610
A CLOCK
A DATA
H REC START
A MUTE
S VHS
A ERASE
REC START
D O CTL
A RESET
NC
NC
From/To 09
AUDIO UNIT
CN9
(Page 3–52)
CN606
REC
FLYING ERASE
GND
SWD 12V
To 46
FLYING ERASE,CN2
(Page 3–68)
INDEX
CAP DRIVE
PICTURE MUTE
CAP FG
DRUM DRIVE
DRUM FF
CTL PULSE
V PULSE
CAP FG
SERVO
GND
FM DET IN
S CLOCK
S DATA
SECAM DET
SPECIAL PB
R.REV
PAUSE
S VHS
VIDEO
LP SPECIAL
LP SEARCH
AVG FM
SWD 5V
GND(M)
MOTOR 12V
CTL CLOCK
AUTO COLOR JUMP
COLOR 1H JUMP
From/To 04
SERVO (A/S/M)
(Page 3–28)
IC603
M50255P
IC604
CAT35C104P–007 (E) E
CAT35C104P–006 (EG) EG

3.15 DECK TERMINAL, LOADING MDA, CAPSTAN MDA, C. HOUSING SCHEMATIC DIAGRAMS

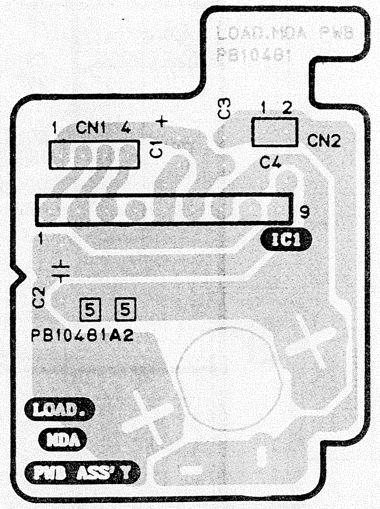

56 CASS HOUSING
R1 47K
R2 680
R3 1K
TH1 50K
D1 UZ5.1 BSB
PS3
Q2 START SENSOR PN268VI-NC
C1 0.01
CN2
START SENS
GND
MOTOR 12V
CASS SENS
CN3
57 CAP MDA
M
CAP MOTOR
CAP REV
SWD 5V
CAP FG
GND
GND (M)
CAP DRIVE
MOTOR 12V
CN2
BY MECHANISM
S3 SLIDE SW
CN1
START SENS
CASS SENS
GND
MODE SENS B
REEL FG(TU)
SWD 5V
REC SAFETY
MODE SENS A
END SENS
GND (M)
CAP REV
CAP DRIVE
CAP FG
MOTOR 12V
REEL FG(SUP)
THERM
MODE SENS C
S VHS
From/To 04 MECHACON (A/S/M) CN601 (Page 3-32)
TH601 1
R8 47K
51
DECK TERMINAL
R5 330
R4 330
R3 330
Q1
S1
C1 0.01
S2
D1
AMP
AMP
S1 S-VHS
Q1 END SENSOR
S2 REC SAFETY
SUPPLY TURNTABLE
PS2
TAKE UP TURNTABLE
PS1
MAIN DECK
55 LOADING MDA
CONTROL LOGIC
IC 1 BA6418N
CN1
MOTOR 12V
LCM 1
GND (M)
LCM 2
From/To 04 MECHACON (A/S/M) CN602 (Page 3-31)
C2 1/50
C1 220/16
M
LOADING MOTOR

3.16 DECK TERMINAL, LOADING MDA, C. HOUSING, A/C HEAD CIRCUIT BOARDS

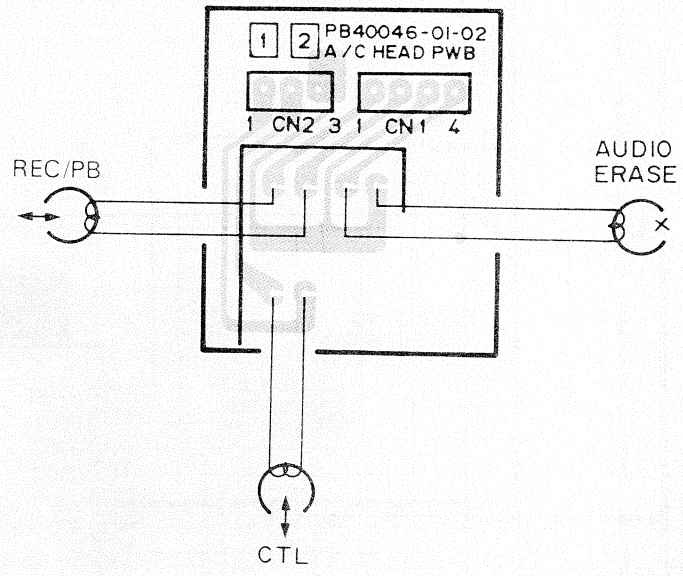
– DECK TERMINAL –


PB10481A1
51 DECK TERMINAL PWB ASS'Y
PS1
PS2
Q1
C1
D1
R1
R2
R7
R8
C
B
A
1
2
3
4
5
6
7

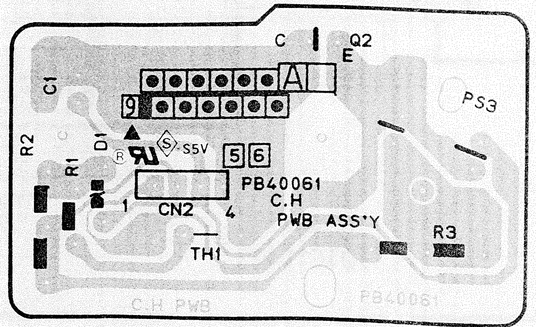
– LOADING MDA –


LOAD.MDA PWB
PB10481
1 CN1 4
C1
C3
1 2
CN2
C4
9
1
IC1
C2
55
PB10481A2
LOAD.
MDA
PWB ASS'Y

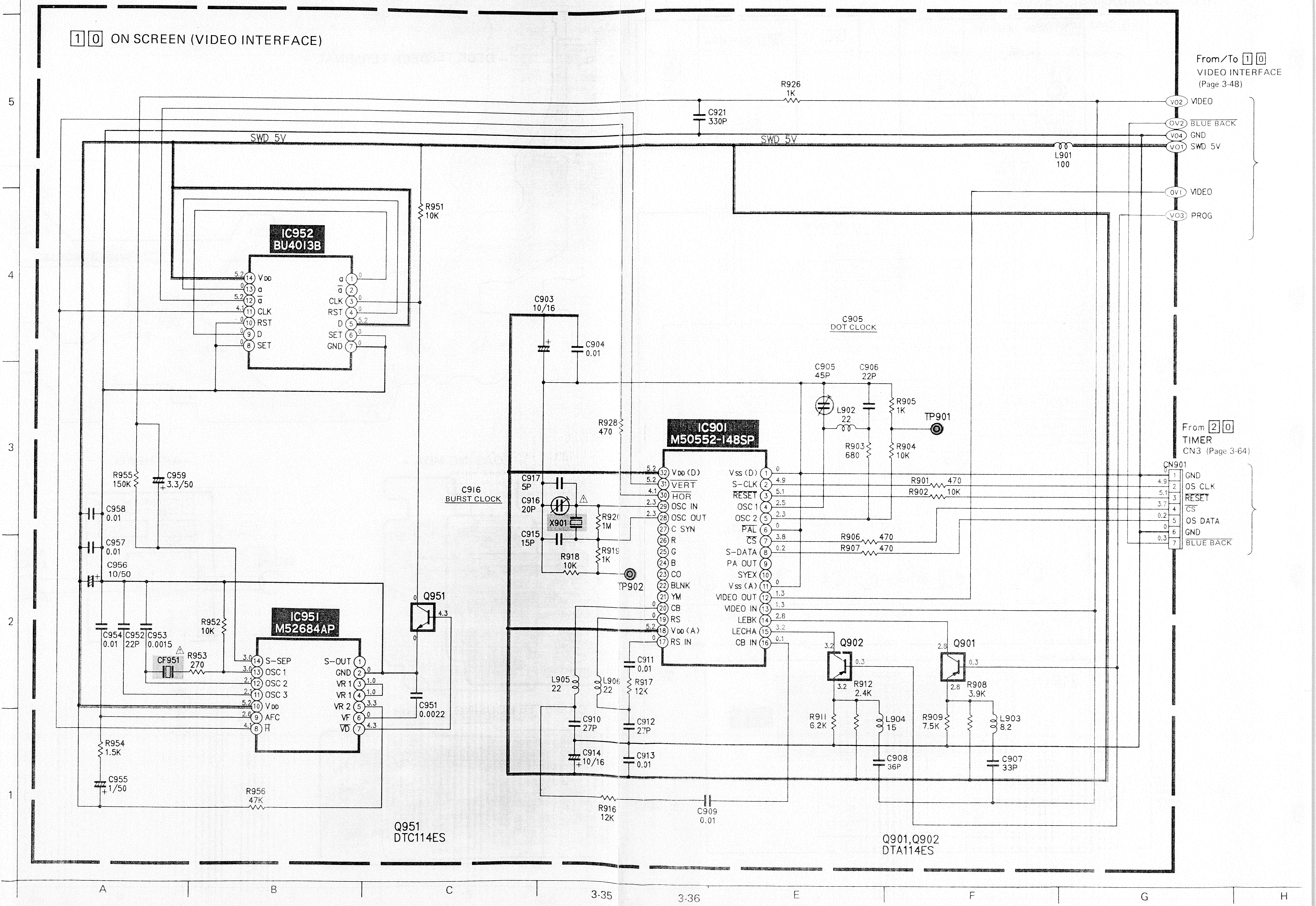
– A/C HEAD –


12 PB40046-01-02 A/C HEAD PWB
1 CN2 3
1 CN1 4
REC/PB
AUDIO ERASE
CTL

– CASSETTE HOUSING –


C
E
Q2
C1
A
9
PS3
D1
R2
R1
S5V
56
PB40061 C.H PWB ASS'Y
1 CN2 4
TH1
R3
C.H PWB
PB40061

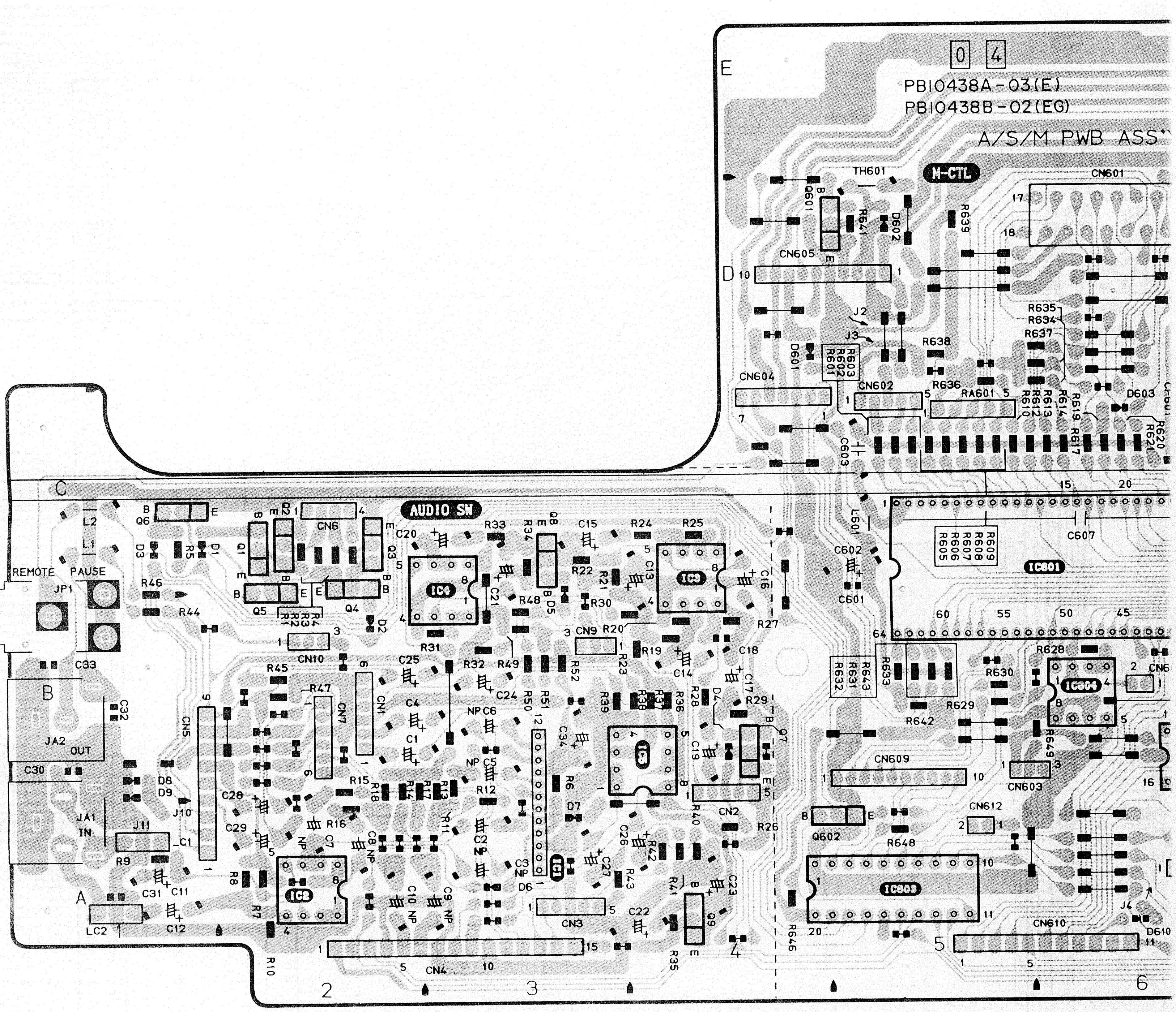
3.17 ON SCREEN SCHEMATIC DIAGRAM



1 0 ON SCREEN (VIDEO INTERFACE)
From/To 1 0 VIDEO INTERFACE (Page 3-48)
VO2 VIDEO
OV2 BLUE BACK
VO4 GND
VO1 SWD 5V
OV1 VIDEO
VO3 PROG
From 2 0 TIMER CN3 (Page 3-64)
CN901
1 GND
2 OS CLK
3 RESET
4 CS
5 OS DATA
6 GND
7 BLUE BACK
SWD 5V
R926 1K
C921 330P
L901 100
IC952 BU4013B
14 VDD
13 a
12 ā
11 CLK
10 RST
9 D
8 SET
1 a
2 ā
3 CLK
4 RST
5 D
6 SET
7 GND
R951 10K
C903 10/16
C904 0.01
C905 DOT CLOCK
C905 45P
C906 22P
L902 22
R905 1K
TP901
R903 680
R904 10K
R928 470
IC901 M50552-148SP
32 VDD (D)
31 VERT
30 HOR
29 OSC IN
28 OSC OUT
27 C SYN
26 R
25 G
24 B
23 CO
22 BLNK
21 YM
20 CB
19 RS
18 VDD (A)
17 RS IN
1 Vss (D)
2 S-CLK
3 RESET
4 OSC 1
5 OSC 2
6 PAL
7 CS
8 S-DATA
9 PA OUT
10 SYEX
11 Vss (A)
12 VIDEO OUT
13 VIDEO IN
14 LEBK
15 LECHA
16 CB IN
R901 470
R902 10K
R906 470
R907 470
C916 BURST CLOCK
C917 5P
C916 20P
C915 15P
X901
R920 1M
R918 10K
R919 1K
TP902
C911 0.01
R917 12K
L905 22
L906 22
C910 27P
C912 27P
C914 10/16
C913 0.01
R916 12K
C909 0.01
Q902
R912 2.4K
R911 6.2K
L904 15
C908 36P
Q901
R908 3.9K
R909 7.5K
L903 8.2
C907 33P
R955 150K
C959 3.3/50
C958 0.01
C957 0.01
C956 10/50
C954 0.01
C952 22P
C953 0.0015
R952 10K
CF951
R953 270
IC951 M52684AP
14 S-SEP
13 OSC 1
12 OSC 2
11 OSC 3
10 VDD
9 AFC
8 H
1 S-OUT
2 GND
3 VR 1
4 VR 1
5 VR 2
6 VF
7 VD
Q951
C951 0.0022
R954 1.5K
C955 1/50
R956 47K
Q951 DTC114ES
Q901,Q902 DTA114ES
A
B
C
E
F
G
H
1
2
3
4
5
6

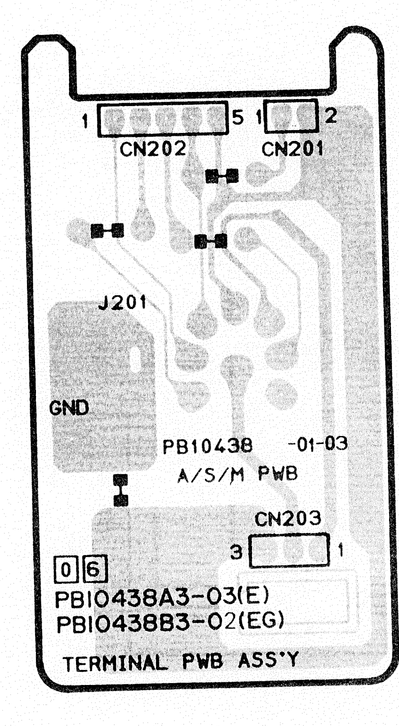
3.18 A/S/M, TERMINAL AND SOUND MENU CIRCUIT BOARDS

– A/S/M –

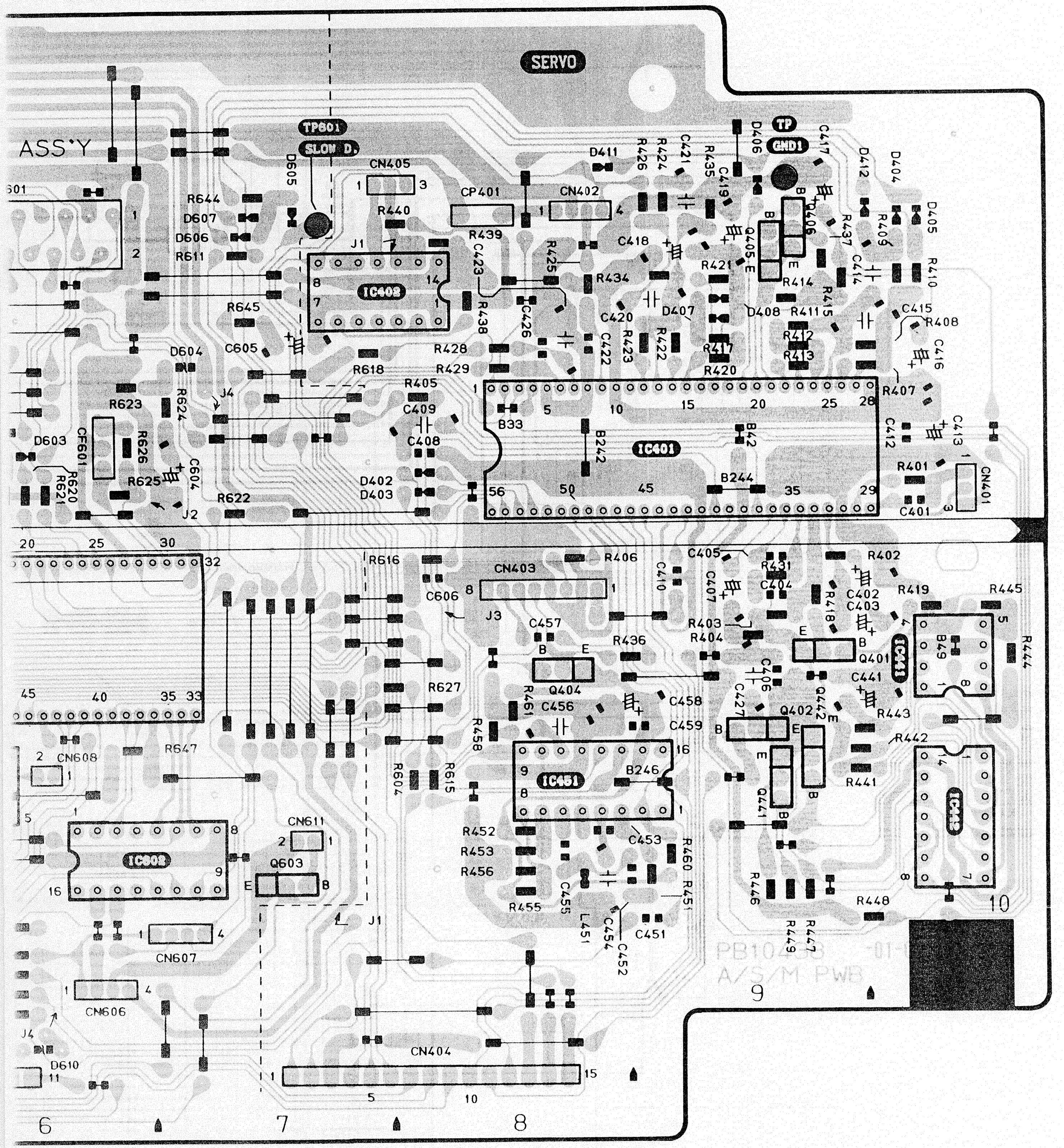


0 4
PB10438A-03(E)
PB10438B-02(EG)
A/S/M PWB ASS'Y
M-CTL
AUDIO SW
REMOTE
PAUSE
JP1
JA2 OUT
JA1 IN
IC1
IC2
IC3
IC4
IC5
IC601
IC603
IC604
CN601
CN602
CN603
CN604
CN605
CN609
CN610
CN612
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN9
CN10
TH601
Q601
Q602
D601
D602
D603
D610
L601
C601
C602
C603
C607
RA601
J2
J3
J4
LC2
A
B
C
D
E
2
3
4
5
6

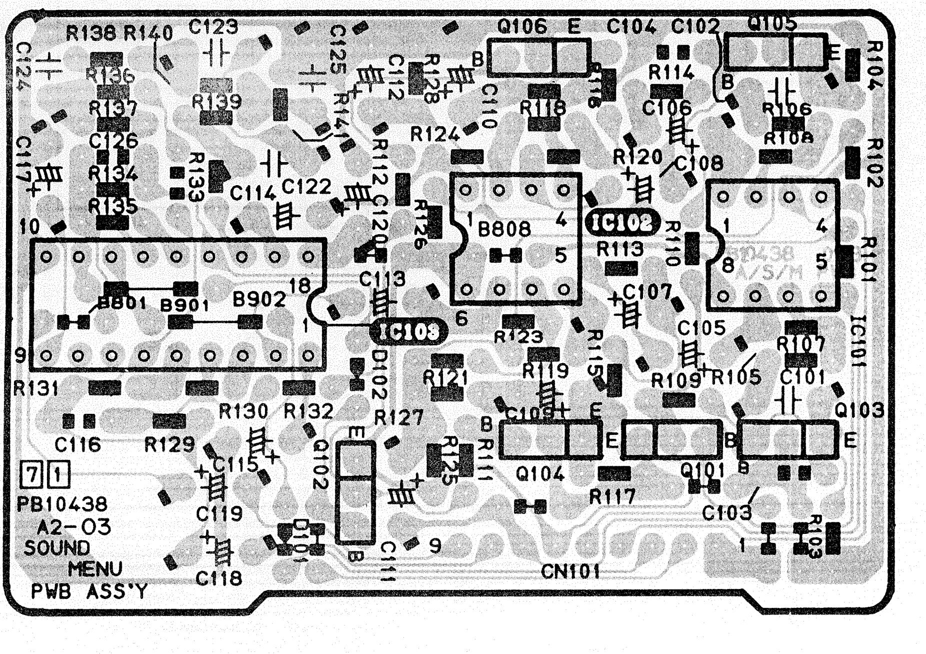
– TERMINAL –



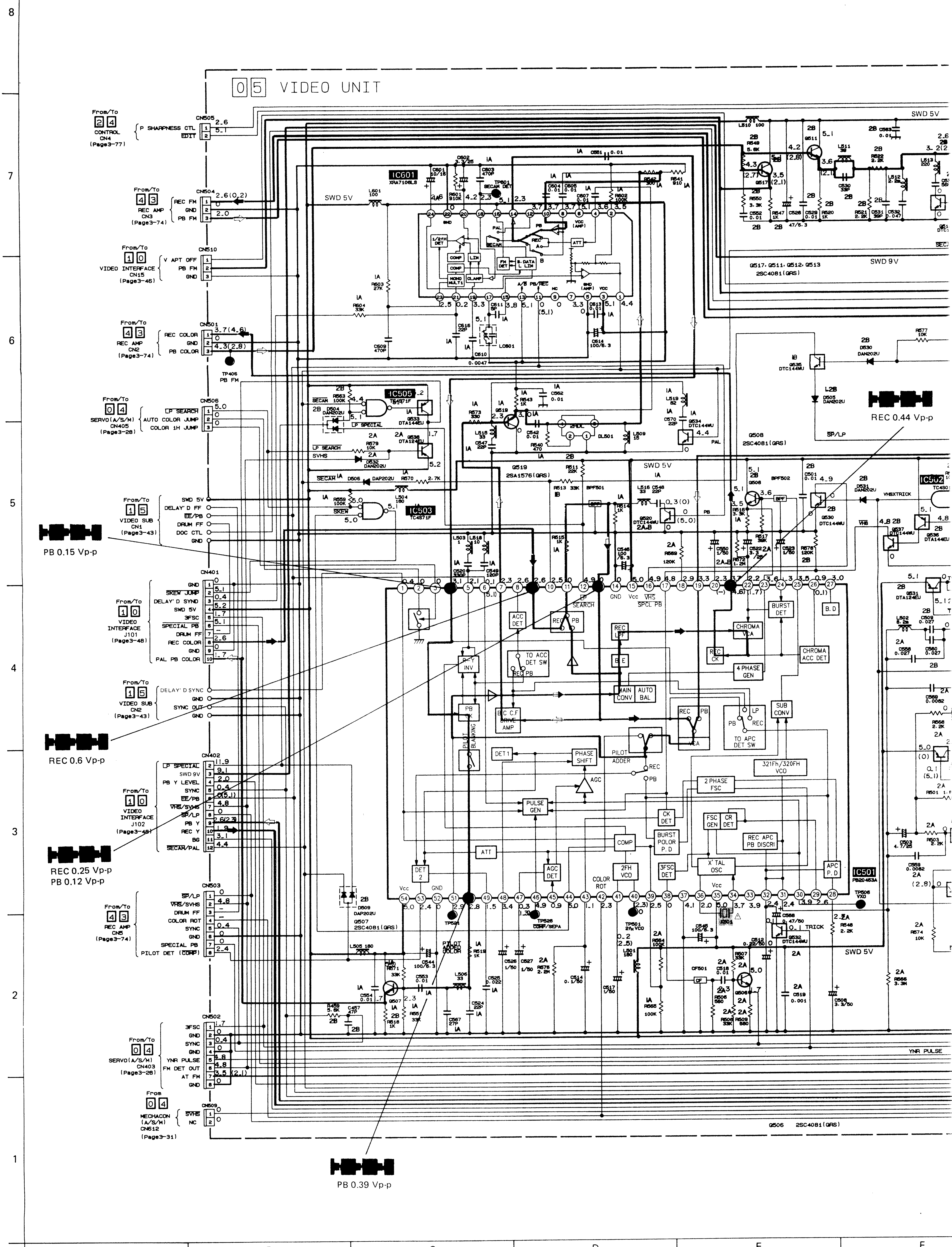
CN202
CN201
J201
GND
PB10438 -01-03
A/S/M PWB
CN203
0 6
PB10438A3-03(E)
PB10438B3-02(EG)
TERMINAL PWB ASS'Y


SERVO
ASS'Y
TP601
SLOW D.
TP
GND1
CN405
CP401
CN402
IC402
IC401
CN401
CN403
IC451
IC441
IC442
IC802
CN608
CN611
Q603
CN607
CN606
CN404
Q404
Q401
Q402
Q441
Q442
Q405
Q406
PB10438 -01-
A/S/M PWB
6
7
8
9
10

– SOUND MENU –


IC101
IC102
IC103
Q101
Q102
Q103
Q104
Q105
Q106
CN101
B808
B801
B901
B902
PB10438
A2-03
SOUND
MENU
PWB ASS'Y
10438
A/S/M

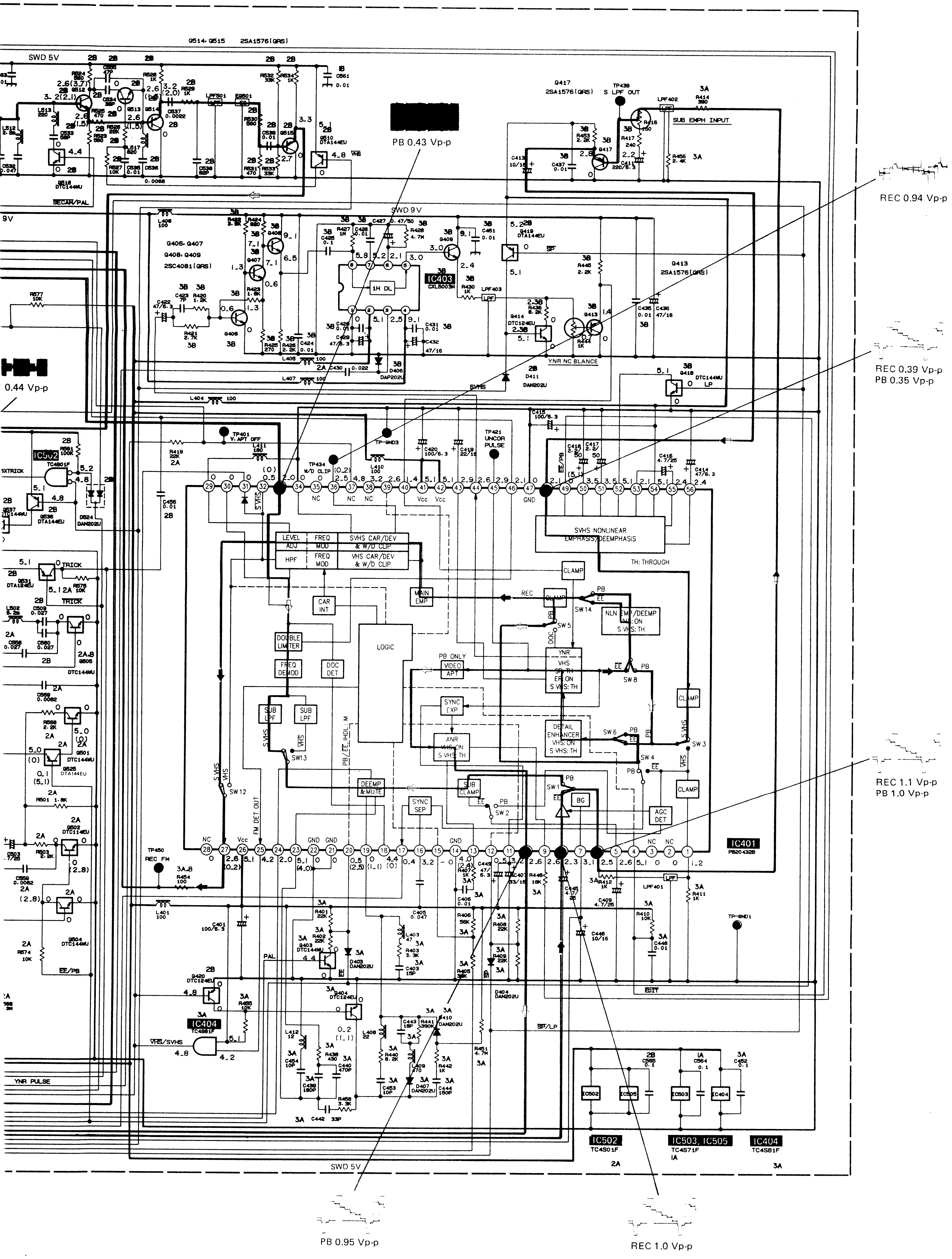
3.19 VIDEO UNIT SCHEMATIC DIAGRAM



05 VIDEO UNIT
From/To 24 CONTROL CN4 (Page3-77)
P SHARPNESS CTL
EDIT
CN505
From/To 43 REC AMP CN3 (Page3-74)
REC FM
GND
PB FM
CN504
From/To 10 VIDEO INTERFACE CN15 (Page3-46)
V APT OFF
PB FM
GND
CN510
From/To 43 REC AMP CN2 (Page3-74)
REC COLOR
GND
PB COLOR
CN501
TP406 PB FM
From/To 04 SERVO(A/S/M) CN405 (Page3-28)
LP SEARCH
AUTO COLOR JUMP
COLOR 1H JUMP
CN506
From/To 15 VIDEO SUB CN1 (Page3-43)
SWD 5V
DELAY'D FF
EE/PB
DRUM FF
DOC CTL
GND
PB 0.15 Vp-p
CN401
From/To 10 VIDEO INTERFACE J101 (Page3-48)
GND
SKEW JUMP
DELAY'D SYNC
SWD 5V
3FSC
SPECIAL PB
DRUM FF
REC COLOR
GND
PAL PB COLOR
From/To 15 VIDEO SUB CN2 (Page3-43)
DELAY'D SYNC
GND
SYNC OUT
GND
REC 0.6 Vp-p
CN402
From/To 10 VIDEO INTERFACE J102 (Page3-48)
LP SPECIAL
SWD 9V
PB Y LEVEL
SYNC
EE/PB
VHS/SVHS
SP/LP
PB Y
REC Y
BG
SECAM/PAL
REC 0.25 Vp-p
PB 0.12 Vp-p
CN503
From/To 43 REC AMP CN5 (Page3-74)
SP/LP
VHS/SVHS
DRUM FF
COLOR ROT
SYNC
GND
SPECIAL PB
PILOT DET (COMP)
CN502
From/To 04 SERVO(A/S/M) CN403 (Page3-28)
3FSC
GND
SYNC
GND
YNR PULSE
FM DET OUT
AT FM
GND
From 04 MECHACON (A/S/M) CN612 (Page3-31)
SVHS
NC
CN509
IC601 XRA7106LS
SWD 5V
IC505 TC4S71F
IC503 TC4S71F
Q519 2SA1576(QRS)
DL501
Q517, Q511, Q512, Q513 2SC4081(QRS)
SWD 5V
SWD 9V
SECAM DET
REC 0.44 Vp-p
Q508 2SC4081(QRS)
SP/LP
PAL
IC502
VHSXTRICK
IC501 PB20453A
R-Y INV
PB CK
ACC DET
TO ACC DET SW
REC PB
REC LPF
B E
MAIN CONV
AUTO BAL
CHROMA VCA
BURST DET
B.D
CHROMA ACC DET
4 PHASE GEN
SUB CONV
REC CK
VCA
TO APC DET SW
321Fh/320FH VCO
2 PHASE FSC
PILOT ADDER
PHASE SHIFT
DET 1
AGC
PULSE GEN
ATT
DET 2
AGC DET
COMP
2FH VCO
3FSC DET
CK DET
BURST POLOR P.D
FSC GEN
CR DET
REC APC PB DISCRI
X'TAL OSC
APC P.D
COLOR ROT
PILOT ADDER COLOR
BLANKING
PILOT
TP506 VXO
TP501 2fH VCO
TP526 COMP/SEPA
TP524
Q507 2SC4081(QRS)
D509 DAP202U
Q506 2SC4081(QRS)
TRICK
YNR PULSE
SWD 5V
PB 0.39 Vp-p
8
7
6
5
4
3
2
1
A
B
C
D
E
F

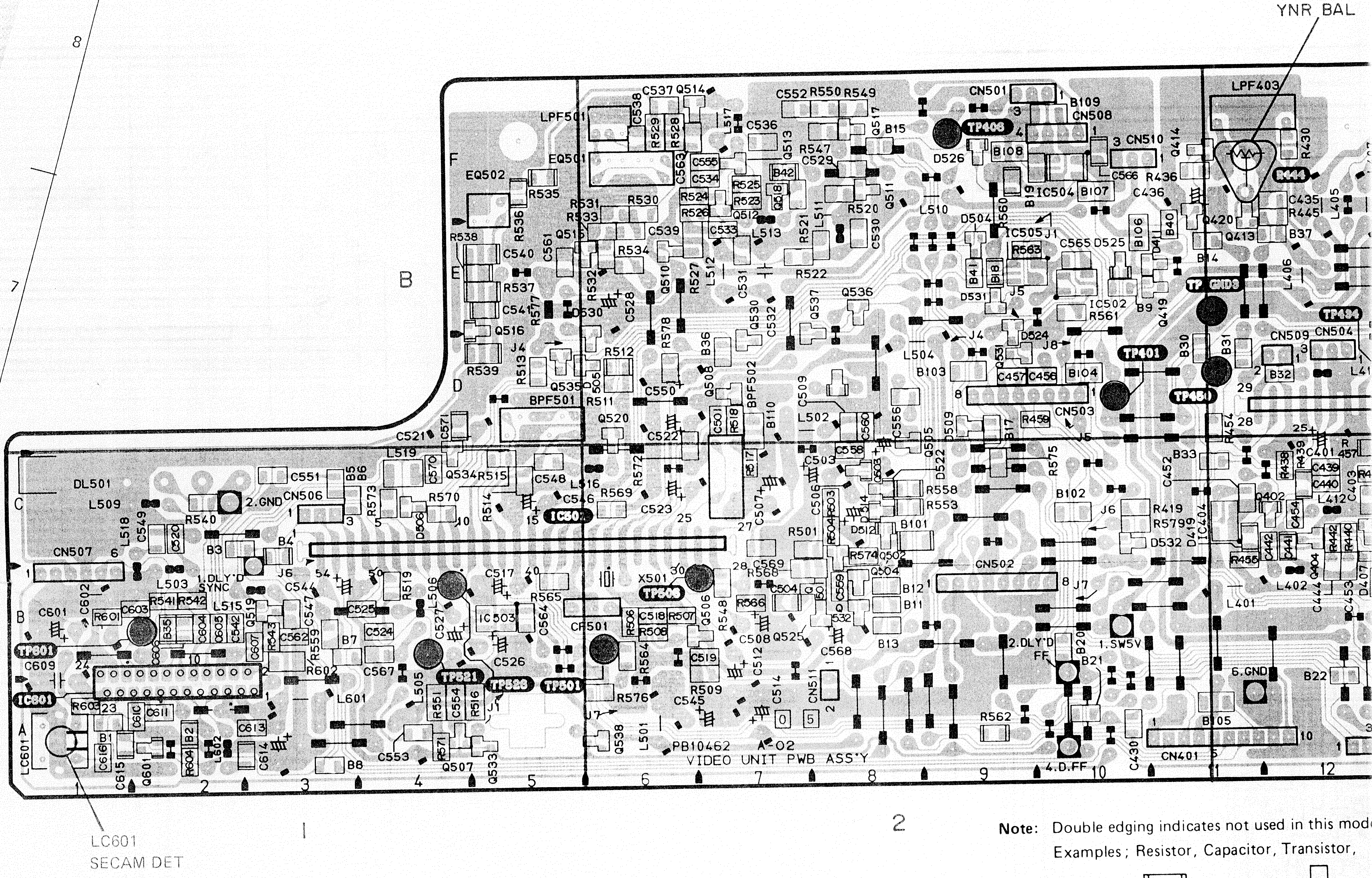
- Address of chip parts

1D
└─Address



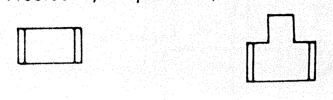
Q514, Q515 2SA1576(QRS)
SWD 5V
PB 0.43 Vp-p
Q417 2SA1576(QRS)
TP439 S LPF OUT
LPF402
SUB EMPH INPUT
REC 0.94 Vp-p
SWD 9V
Q406, Q407 Q408, Q409 2SC4081(QRS)
IC403 CXL5003M
1H DL
Q413 2SA1576(QRS)
YNR NC BLANCE
REC 0.39 Vp-p
PB 0.35 Vp-p
0.44 Vp-p
IC502 TC4S01F
TP401 V. APT OFF
TP434 W/D CLIP
TP-GND3
TP421 UNCOR PULSE
SVHS NONLINEAR EMPHASIS/DEEMPHASIS
TH: THROUGH
LEVEL ADJ
FREQ MOD
SVHS CAR/DEV & W/D CLIP
HPF
VHS CAR/DEV & W/D CLIP
CAR INT
MAIN EMP
CLAMP
REC
PB
EE
SW14
SW5
NLN EMP/DEEMP VHS: ON S VHS: TH
DOUBLE LIMITER
LOGIC
FREQ DEMOD
DOC DET
PB ONLY VIDEO APT
YNR VHS SVHS: TH ER: ON S VHS: TH
SW8
SYNC EXP
SUB LPF
ANR VHS: ON S VHS: TH
DETAIL ENHANCER VHS: ON S VHS: TH
SW6
SW3
SW4
SW13
SW12
DEEMP & MUTE
SUB CLAMP
SW2
SW1
BG
SYNC SEP
AGC DET
REC 1.1 Vp-p
PB 1.0 Vp-p
IC401 PB20432B
FM DET OUT
TP450 REC FM
IC404 TC4S81F
VHS/SVHS
YNR PULSE
EE/PB
SP/LP
EDIT
TP-GND1
IC503, IC505 TC4S71F
SWD 5V
PB 0.95 Vp-p
REC 1.0 Vp-p

3.20 VIDEO UNIT CIRCUIT BOARD


R444
YNR BAL
LPF403
LPF501
EQ501
EQ502
BPF501
BPF502
DL501
CN501
CN502
CN503
CN506
CN507
CN508
CN509
CN510
CN511
CN401
CN504
X501
IC501
IC502
IC503
IC504
IC505
IC601
IC404
TP401
TP406
TP434
TP450
TP501
TP506
TP521
TP526
TP601
TP GND8
2.GND
1.DLY'D SYNC
2.DLY'D FF
1.SW5V
4.D.FF
6.GND
PB10462 A-02
VIDEO UNIT PWB ASS'Y
LC601
SECAM DET

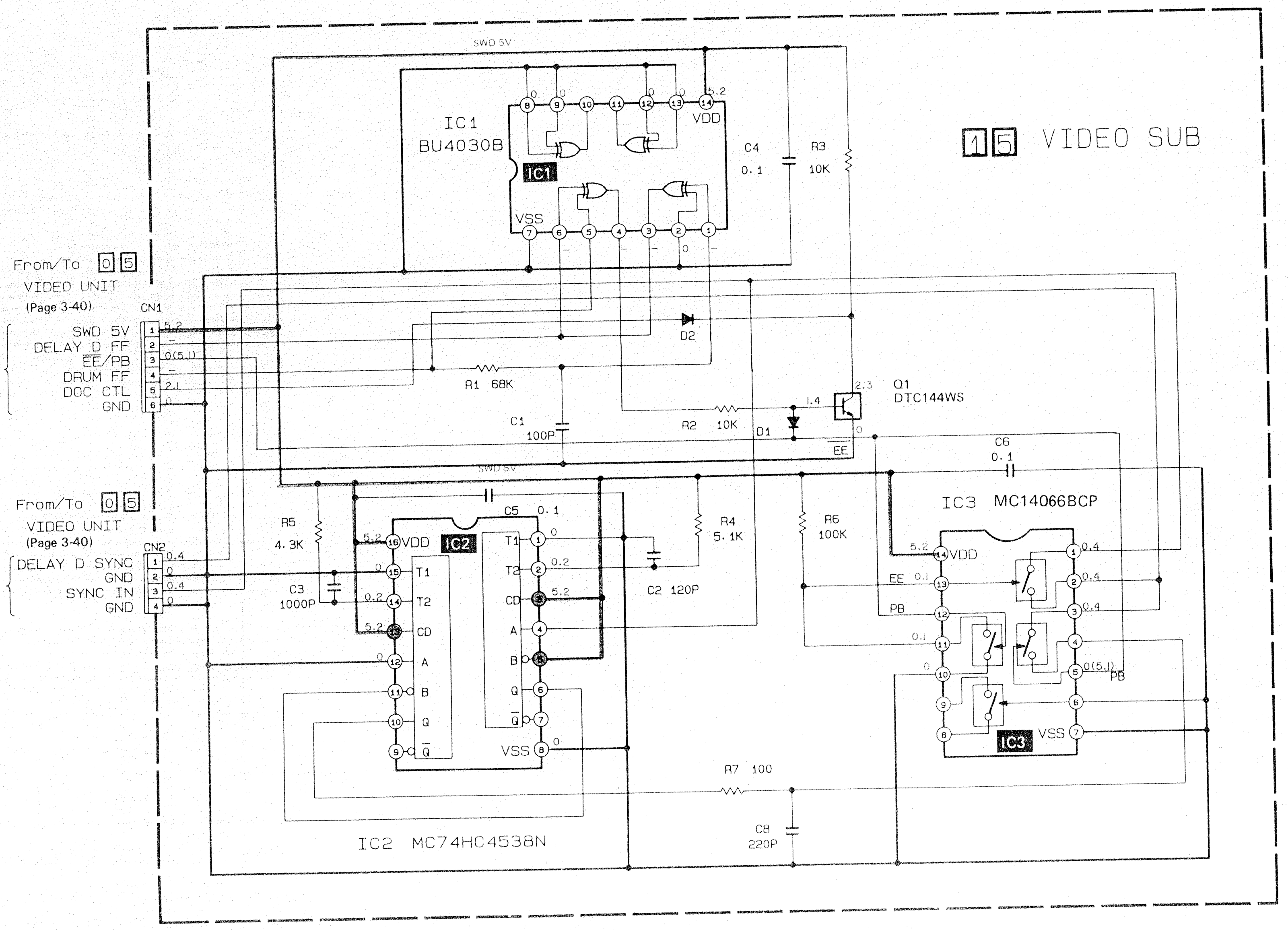
Note: Double edging indicates not used in this mode

Examples; Resistor, Capacitor, Transistor,



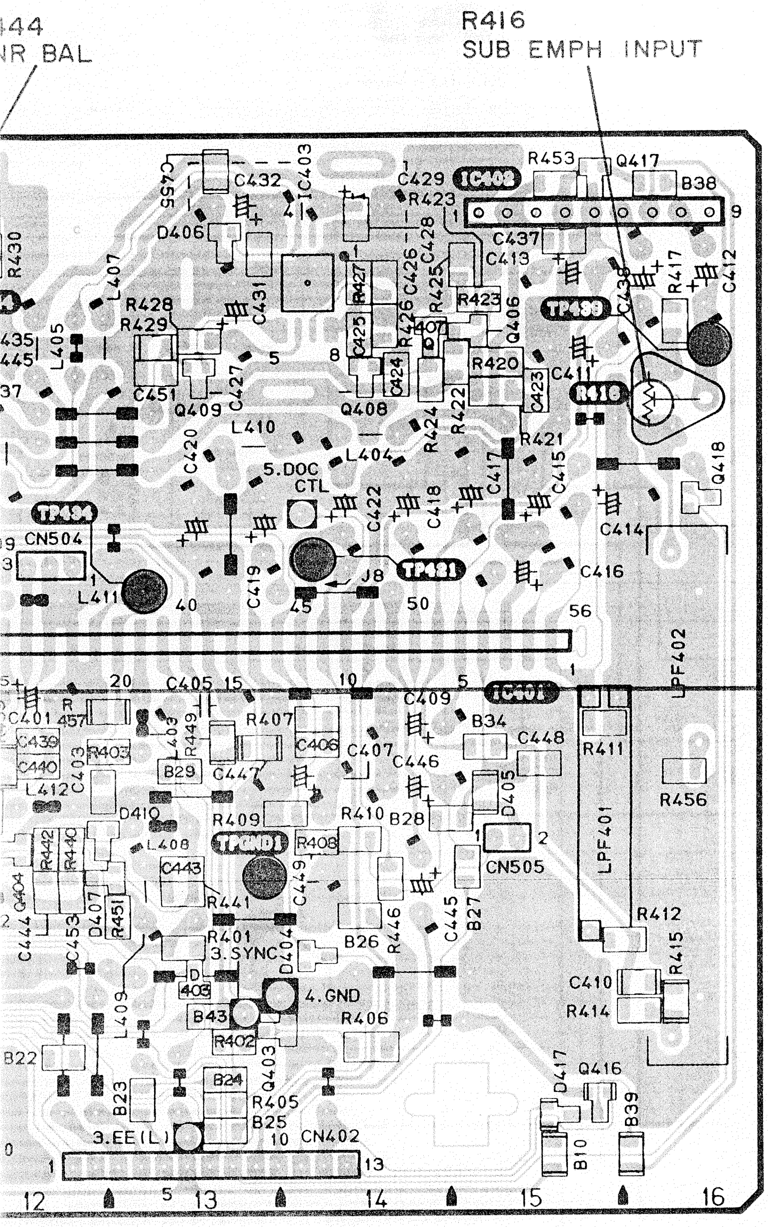
3.23

3.21 VIDEO SUB SCHEMATIC DIAGRAM


15 VIDEO SUB
SWD 5V
IC1
BU4030B
VDD
VSS
C4
0.1
R3
10K
From/To 05
VIDEO UNIT
(Page 3-40)
CN1
SWD 5V
DELAY D FF
EE/PB
DRUM FF
DOC CTL
GND
D2
R1 68K
Q1
DTC144WS
C1
100P
R2 10K
D1
EE
C6
0.1
From/To 05
VIDEO UNIT
(Page 3-40)
CN2
DELAY D SYNC
GND
SYNC IN
GND
R5
4.3K
C3
1000P
IC2
C5 0.1
C2 120P
R4
5.1K
R6
100K
IC3 MC14066BCP
PB
R7 100
C8
220P
IC2 MC74HC4538N

From/To
VIDEO IN
(Page 3-

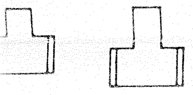
3.22 VIDEO SUB CIRCUIT BOARD

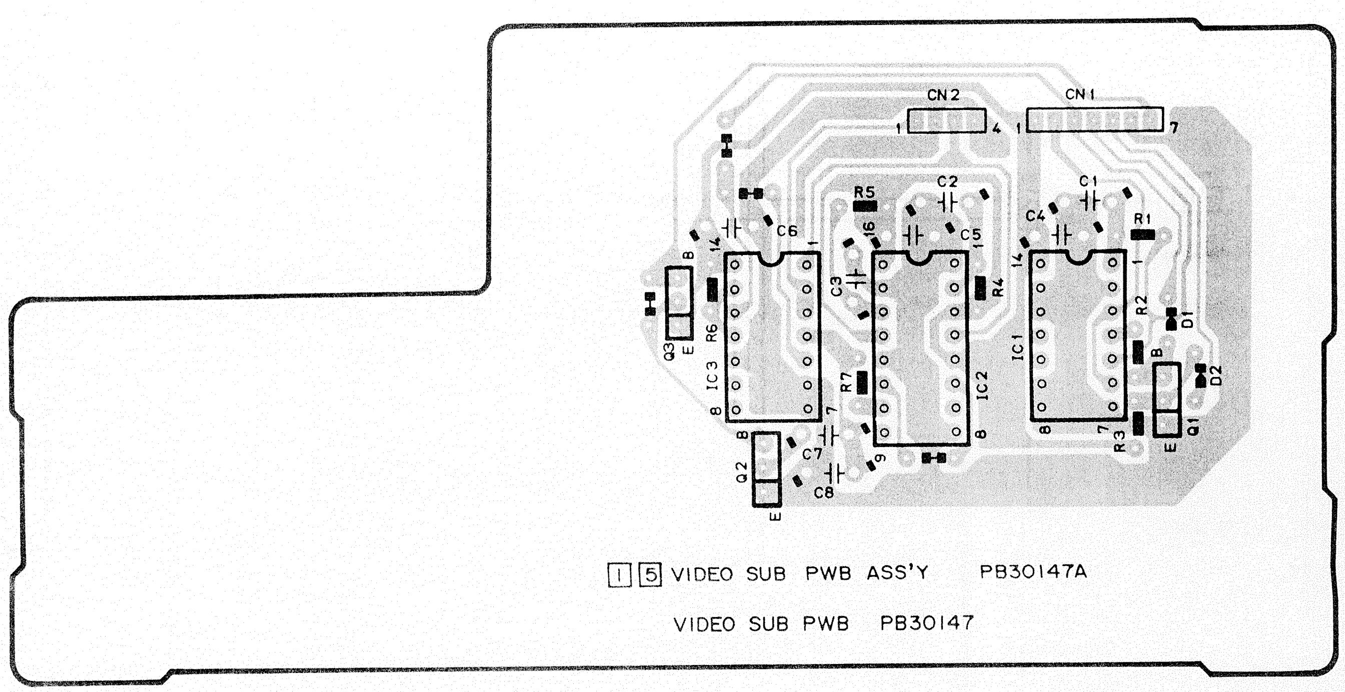

44
R BAL
R416
SUB EMPH INPUT
IC402
IC401
TP499
TP494
TP491
TPGND1
R416
LPF402
LPF401
CN504
CN505
CN402
5.DOC CTL
3.SYNC
4.GND
3.EE(L)
12
13
14
15
16

3

this model.

nsistor, DIODE

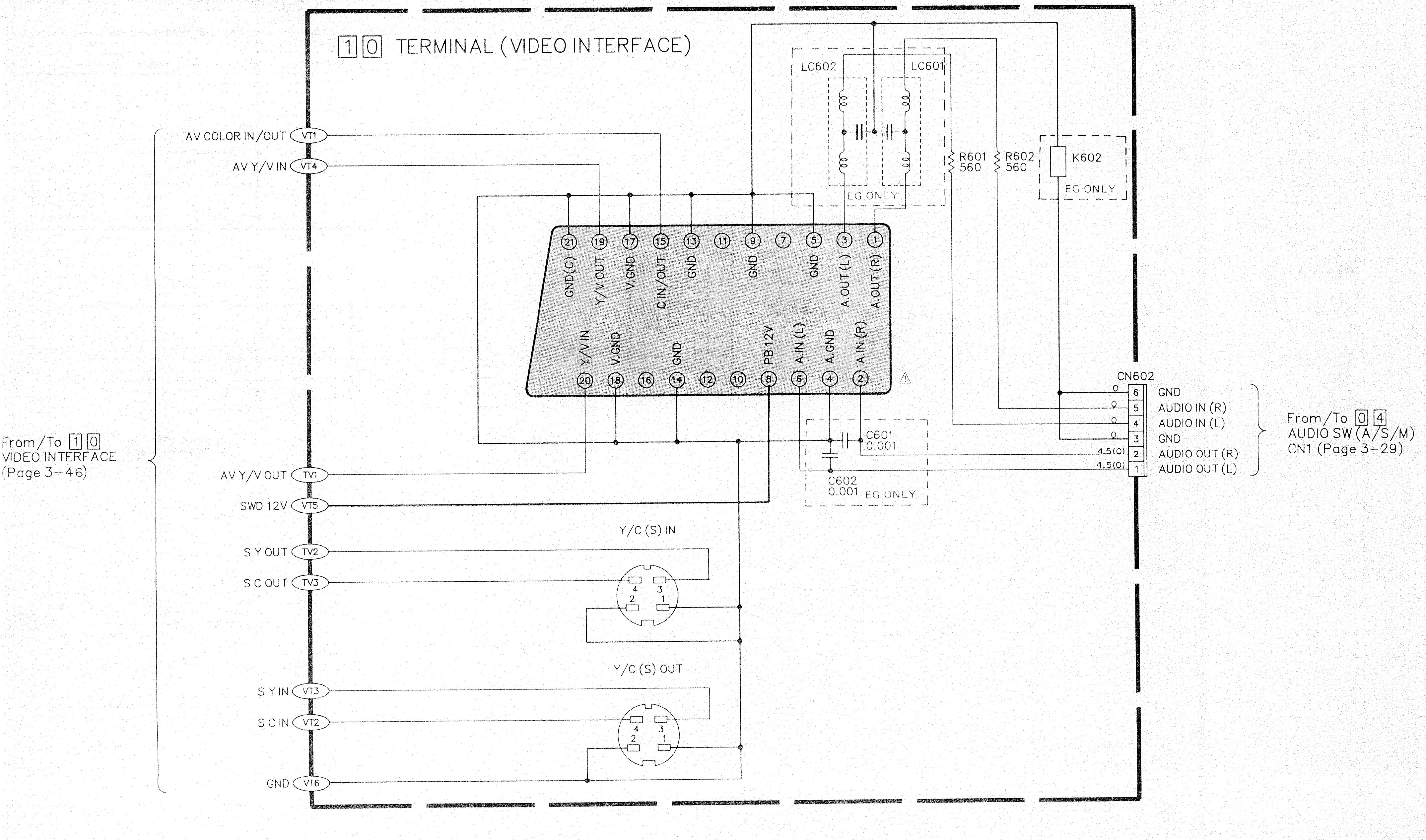



CN2
CN1
IC1
IC2
IC3
Q1
Q2
Q3

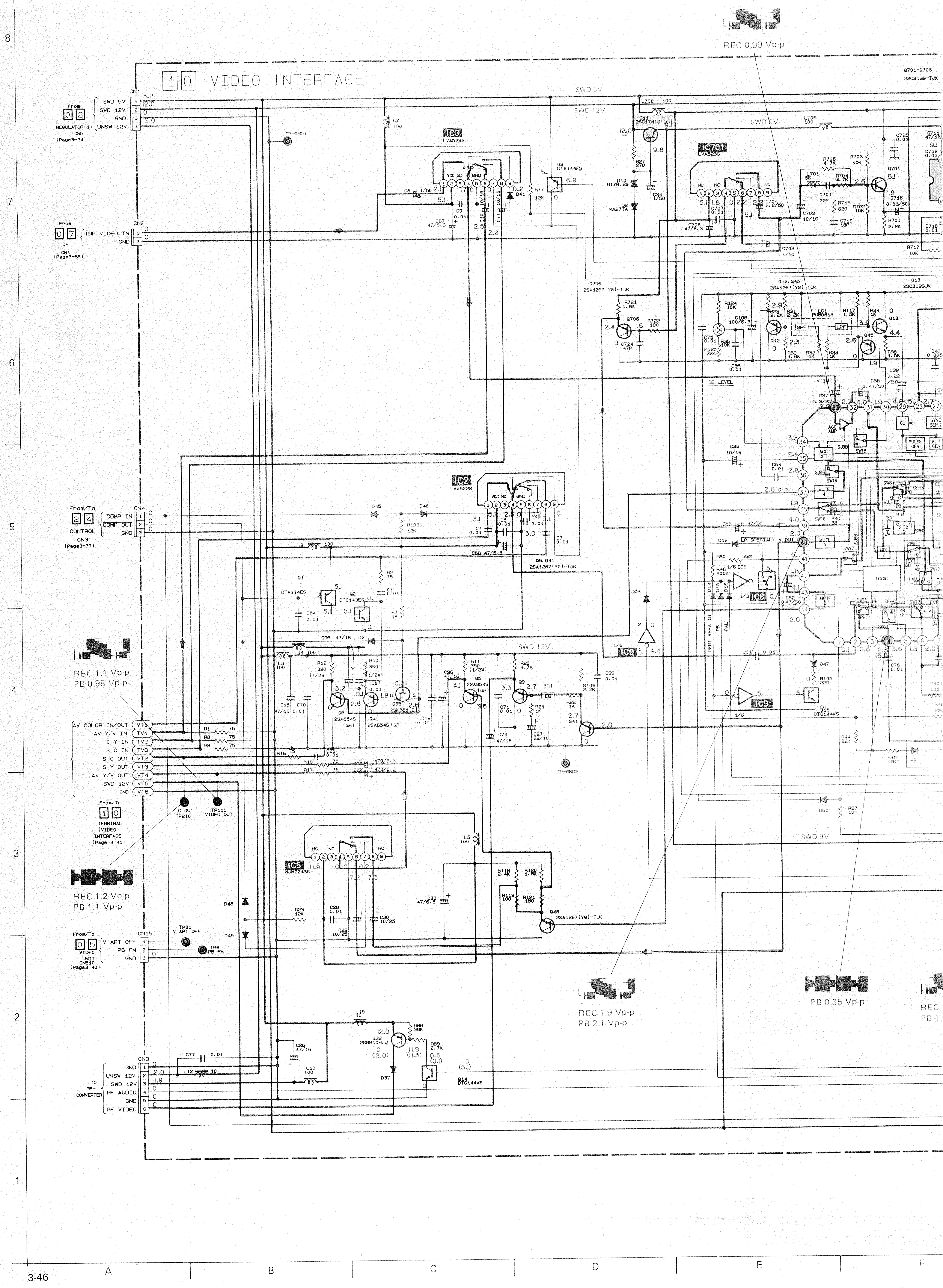
15 VIDEO SUB PWB ASS'Y PB30147A

VIDEO SUB PWB PB30147

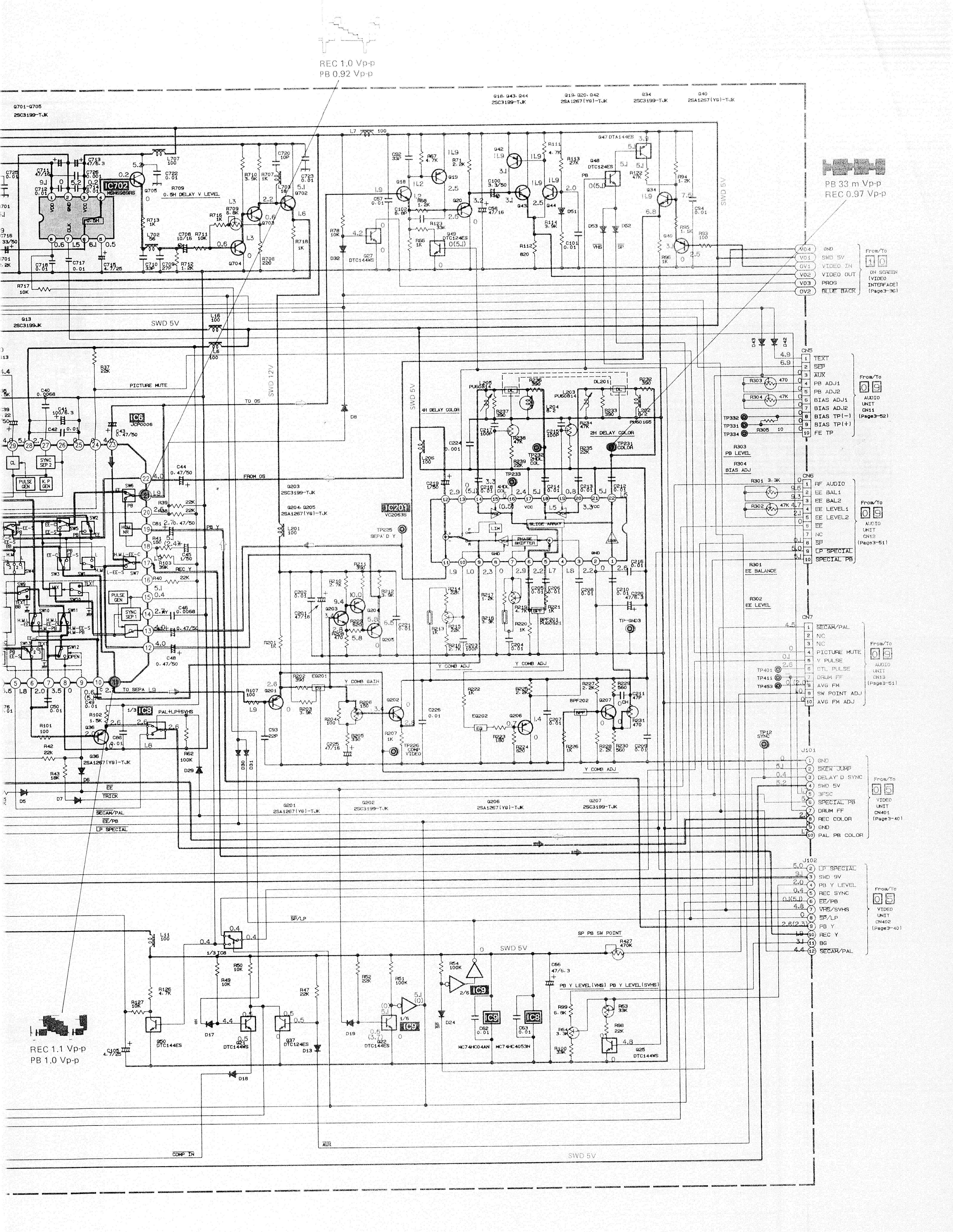
3.23 TERMINAL SCHEMATIC DIAGRAM


10 TERMINAL (VIDEO INTERFACE)
AV COLOR IN/OUT
VT1
AV Y/V IN
VT4
AV Y/V OUT
TV1
SWD 12V
VT5
S Y OUT
TV2
S C OUT
TV3
S Y IN
VT3
S C IN
VT2
GND
VT6
Y/C (S) IN
Y/C (S) OUT
LC602
LC601
EG ONLY
R601 560
R602 560
K602
EG ONLY
GND(C)
Y/V OUT
V.GND
C.IN/OUT
GND
GND
GND
A.OUT (L)
A.OUT (R)
Y/V IN
V.GND
GND
PB 12V
A.IN (L)
A.GND
A.IN (R)
C601 0.001
C602 0.001 EG ONLY
CN602
GND
AUDIO IN (R)
AUDIO IN (L)
GND
AUDIO OUT (R)
AUDIO OUT (L)
4.5(0)
4.5(0)
From/To 10 VIDEO INTERFACE (Page 3-46)
From/To 04 AUDIO SW (A/S/M) CN1 (Page 3-29)

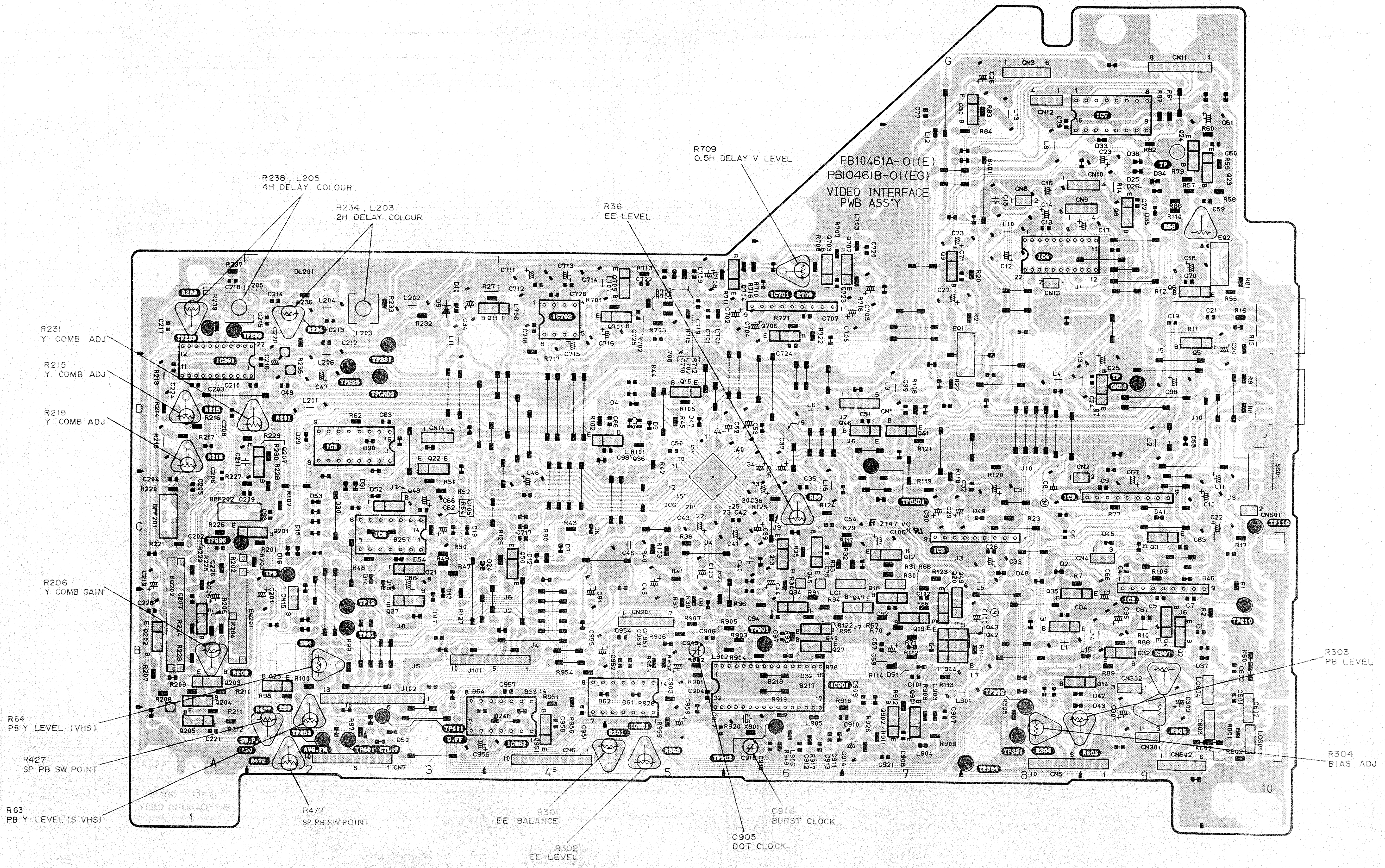
3.24 VIDEO INTERFACE SCHEMATIC DIAGRAM



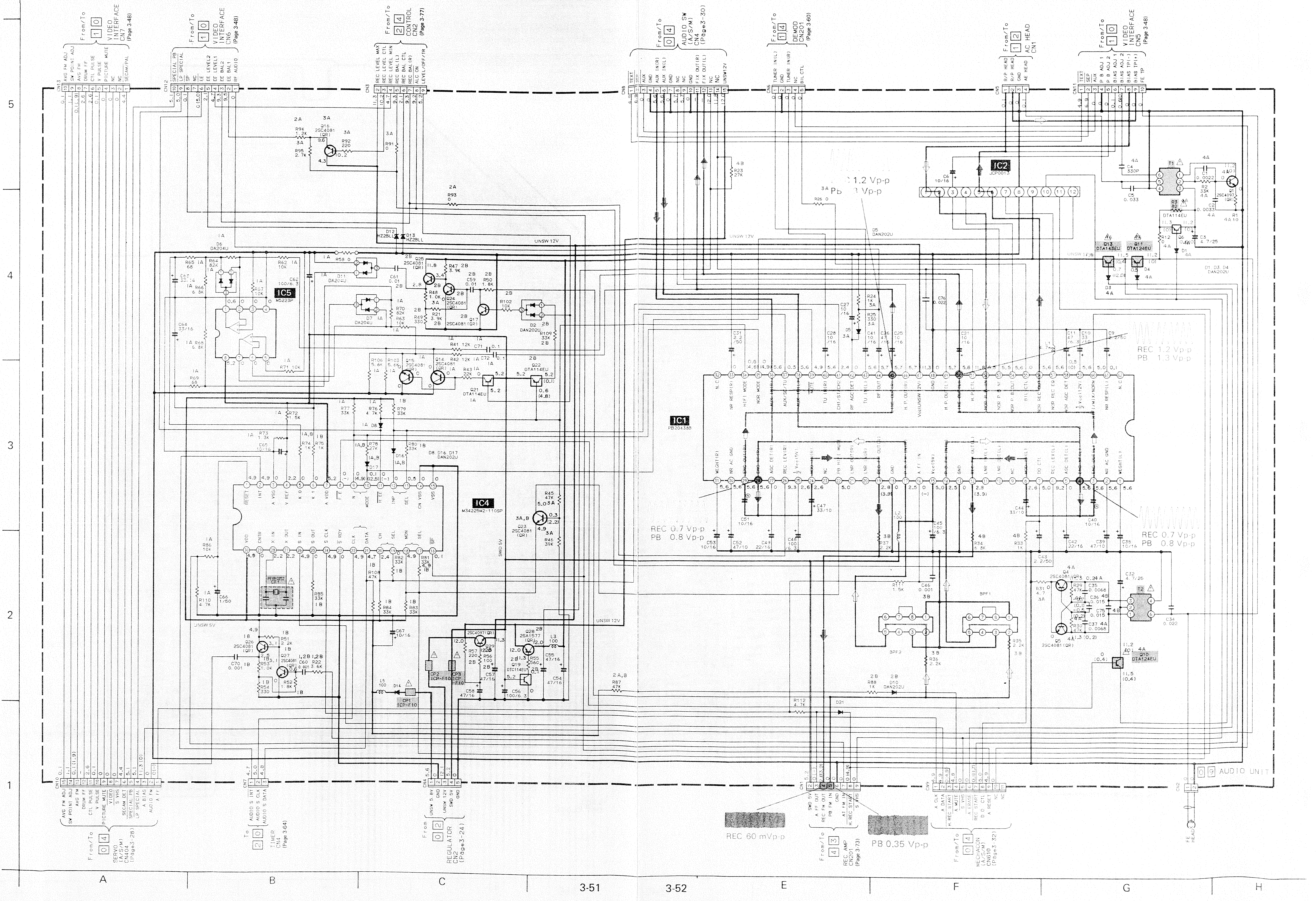
10 VIDEO INTERFACE
REC 0.99 Vp-p
SWD 5V
SWD 12V
SWD 9V
From 02 REGULATOR(1) CN5 (Page3-24)
CN1
SWD 5V
SWD 12V
GND
UNSW 12V
From 07 IF CN1 (Page3-55)
CN2
TNR VIDEO IN
GND
IC3 LVA523S
IC701 LVA523S
IC2 LVA522S
IC5 NJM2243S
IC8
IC9
Q11 2SC1741S(QR)
Q3 DTA144ES
Q701-Q705 2SC3199-TJK
Q706 2SA1267(YG)-TJK
Q12, Q45 2SA1267(YG)-TJK
Q13 2SC3199JK
Q9, Q41 2SA1267(YG)-TJK
Q1 DTA114ES
Q2 DTC143ES
Q6 2SA854S(QR)
Q4 2SA854S(QR)
Q35 2SK381(C)
Q5 2SA854S(QR)
Q46 2SA1267(YG)-TJK
Q32 2SB810H-J
Q14 DTC144WS
Q15 DTC144WS
LC1 PU50813
BPF
LPF
AGC AMP
AGC DET
CL
SYNC SEP
PULSE GEN
LOGIC
MUTE
EE LEVEL
V IN
LP SPECIAL
V OUT
PERI SEPA IN
PB
PAL
From/To 24 CONTROL CN3 (Page3-77)
CN4
COMP IN
COMP OUT
GND
REC 1.1 Vp-p
PB 0.98 Vp-p
AV COLOR IN/OUT
AV Y/V IN
S Y IN
S C IN
S C OUT
S Y OUT
AV Y/V OUT
SWD 12V
GND
VT1
TV1
TV2
TV3
VT2
VT3
VT4
VT5
VT6
From/To 10 TERMINAL (VIDEO INTERFACE) (Page-3-45)
C OUT TP210
TP110 VIDEO OUT
TP-GND1
TP-GND2
REC 1.2 Vp-p
PB 1.1 Vp-p
From/To 05 VIDEO UNIT CN510 (Page3-40)
CN15
V APT OFF
PB FM
GND
TP31 V APT OFF
TP6 PB FM
REC 1.9 Vp-p
PB 2.1 Vp-p
PB 0.35 Vp-p
TO RF-CONVERTER
CN3
GND
UNSW 12V
SWD 12V
RF AUDIO
GND
RF VIDEO
8
7
6
5
4
3
2
1
A
B
C
D
E
F

REC 1.0 Vp-p
PB 0.92 Vp-p
Q701-Q705
2SC3199-TJK
Q18, Q43, Q44
2SC3199-TJK
Q19, Q20, Q42
2SA1267(YG)-TJK
Q34
2SC3199-TJK
Q40
2SA1267(YG)-TJK
PB 33 m Vp-p
REC 0.97 Vp-p
IC702
MSM6985RS
0.5H DELAY V LEVEL
Q47 DTA144ES
Q48 DTC124ES
Q49 DTC124ES
Q27 DTC144WS
SWD 5V
V04 GND
V05 SWD 5V
OV1 VIDEO IN
V02 VIDEO OUT
V03 PROG
OV2 BLUE BACK
From/To 10
ON SCREEN (VIDEO INTERFACE) (Page3-36)
Q13
2SC3199JK
SWD 5V
SWD 12V
PICTURE MUTE
TO OS
4H DELAY COLOR
2H DELAY COLOR
DL201
PU60814
PU60165
TP231 COLOR
TP232 2HDL COL
TP233
IC6
JCP0006
IC201
VC2063S
FROM OS
Q203
2SC3199-TJK
Q204, Q205
2SA1267(YG)-TJK
TP225 SEPA'D Y
SLICE ARRAY
PHASE SHIFTER
LIM
CN5
1 TEXT
2 SEP
3 AUX
4 PB ADJ1
5 PB ADJ2
6 BIAS ADJ1
7 BIAS ADJ2
8 BIAS TP(-)
9 BIAS TP(+)
10 FE TP
From/To 09
AUDIO UNIT CN11 (Page3-52)
TP332
TP331
TP334
R303 PB LEVEL
R304 BIAS ADJ
CN6
1 RF AUDIO
2 EE BAL1
3 EE BAL2
4 EE LEVEL1
5 EE LEVEL2
6 EE
7 NC
8 SP
9 LP SPECIAL
10 SPECIAL PB
From/To 09
AUDIO UNIT CN12 (Page3-51)
R301 EE BALANCE
R302 EE LEVEL
CN7
1 SECAM/PAL
2 NC
3 NC
4 PICTURE MUTE
5 Y PULSE
6 CTL PULSE
7 DRUM FF
8 AVG FM
9 SW POINT ADJ
10 AVG FM ADJ
From/To 09
AUDIO UNIT CN13 (Page3-51)
TP401
TP411
TP453
TP12 SYNC
J101
1 GND
2 SKEW JUMP
3 DELAY'D SYNC
4 SWD 5V
5 3FSC
6 SPECIAL PB
7 DRUM FF
8 REC COLOR
9 GND
10 PAL PB COLOR
From/To 05
VIDEO UNIT CN401 (Page3-40)
J102
1 LP SPECIAL
2 SWD 9V
3 PB Y LEVEL
4 REC SYNC
5 EE/PB
6 VHS/SVHS
7 SP/LP
8 PB Y
9 REC Y
10 REC Y
11 BG
12 SECAM/PAL
From/To 05
VIDEO UNIT CN402 (Page3-40)
Y COMB ADJ
Y COMB GAIN
EQ201
EQ202
BPF202
TP226 COMP VIDEO
TP-GND3
Q201
2SA1267(YG)-TJK
Q202
2SC3199-TJK
Q206
2SA1267(YG)-TJK
Q207
2SC3199-TJK
IC8
PAL+LP+SVHS
Q36
2SA1267(YG)-TJK
TO SEPA
EE
TRICK
SECAM/PAL
EE/PB
LP SPECIAL
SP/LP
SP PB SW POINT
SWD 5V
PB Y LEVEL(VHS)
PB Y LEVEL(SVHS)
IC9
MC74HC04AN
MC74HC4053N
Q50 DTC144ES
Q21 DTC144WS
Q37 DTC124ES
Q22 DTC144ES
Q25 DTC144WS
REC 1.1 Vp-p
PB 1.0 Vp-p
COMP IN
AUX
SWD 5V

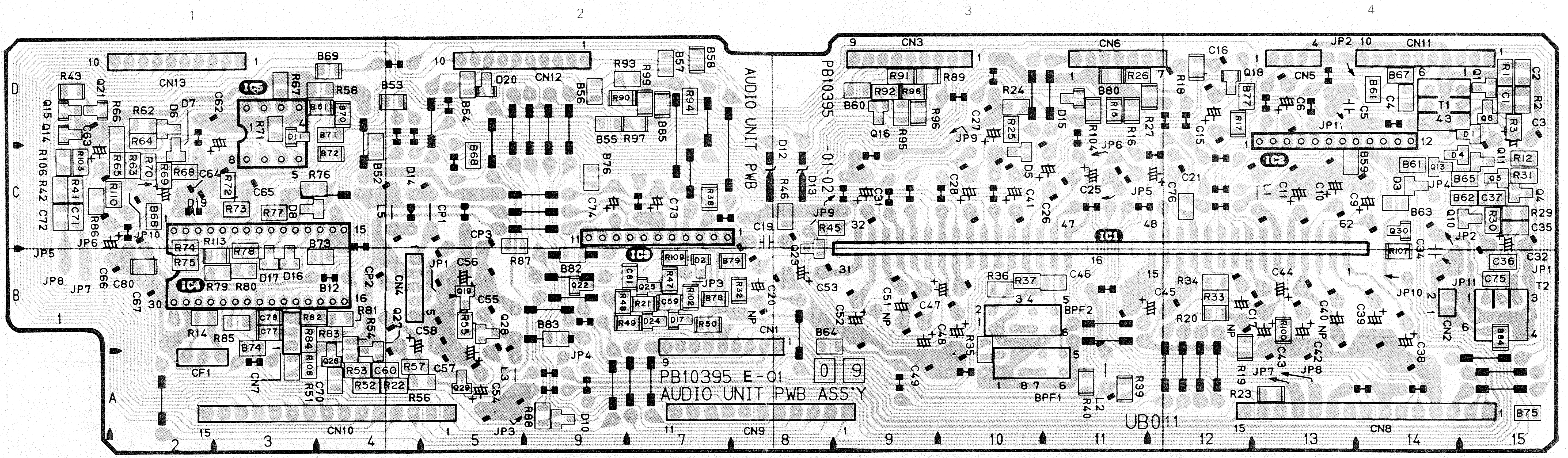
3.25 VIDEO INTERFACE CIRCUIT BOARD


R238 , L205
4H DELAY COLOUR
R234 , L203
2H DELAY COLOUR
R36
EE LEVEL
R709
0.5H DELAY V LEVEL
PB10461A-01(E)
PB10461B-01(EG)
VIDEO INTERFACE
PWB ASS'Y
R231
Y COMB ADJ
R215
Y COMB ADJ
R219
Y COMB ADJ
R206
Y COMB GAIN
R64
PB Y LEVEL (VHS)
R427
SP PB SW POINT
R63
PB Y LEVEL (S VHS)
R472
SP PB SW POINT
R301
EE BALANCE
R302
EE LEVEL
C905
DOT CLOCK
C916
BURST CLOCK
R303
PB LEVEL
R304
BIAS ADJ
PB10461 -01-01
VIDEO INTERFACE PWB

3.26 AUDIO UNIT SCHEMATIC DIAGRAM


From/To 10 VIDEO INTERFACE CN7 (Page 3-48)
From/To 10 VIDEO INTERFACE CN6 (Page 3-48)
From/To 24 CONTROL CN2 (Page 3-77)
From/To 04 AUDIO SW (A/S/M) CN4 (Page 3-30)
From/To 14 DEMOD CN201 (Page 3-60)
From/To 12 AC HEAD CN1
From/To 10 VIDEO INTERFACE CN5 (Page 3-48)
CN13
CN12
CN3
CN8
CN6
CN5
CN11
IC1 PB2043BB
IC2 JCP0013
IC4 M34225M2-110SP
IC5 M5223P
REC 1.2 Vp-p
PB 1.3 Vp-p
REC 0.7 Vp-p
PB 0.8 Vp-p
UNSW 12V
UNSW 5V
SWD 5V
BPF1
BPF2
T1
T2
CP1 ICP-F10
CP2 ICP-F10
CP3 ICP-F10
CN10
CN7
CN4
CN1
CN9
CN2
From/To 04 SERVO (A/S/M) CN404 (Page 3-28)
To 20 TIMER CN4 (Page 3-64)
From 02 REGULATOR CN2 (Page 3-24)
REC 60 mVp-p
PB 0.35 Vp-p
From/To 43 REC AMP CN201 (Page 3-73)
From/To 04 MECHACON (A/S/M) CN610 (Page 3-32)
09 AUDIO UNIT
FE HEAD
1
2
3
4
5
6
A
B
C
E
F
G
H

3.27 AUDIO UNIT CIRCUIT BOARD

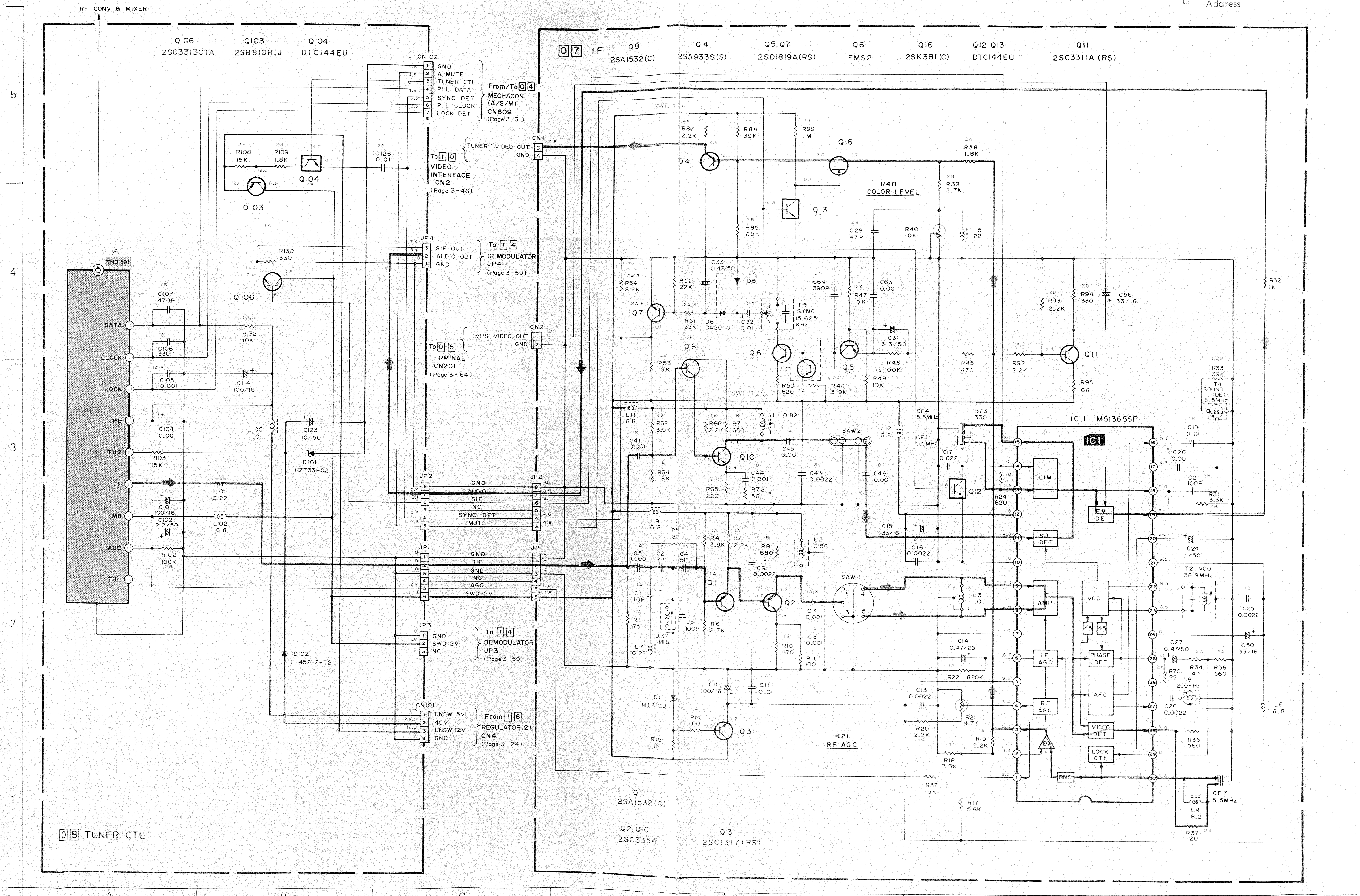


1
2
3
4
CN13
CN12
CN3
CN6
CN5
CN11
CN1
CN2
CN4
CN7
CN8
CN9
CN10
IC1
IC2
IC3
IC4
IC5
T1
T2
BPF1
BPF2
CF1
AUDIO UNIT PWB
PB10395 -01-02
PB10395 E-01
AUDIO UNIT PWB ASS'Y
0 9
UB011

3.28 IF AND TUNER CONTROL SCHEMATIC DIAGRAMS

Note: Voltages are DC-measured with a digital voltmeter during stop and tuner mode. (3 ch)

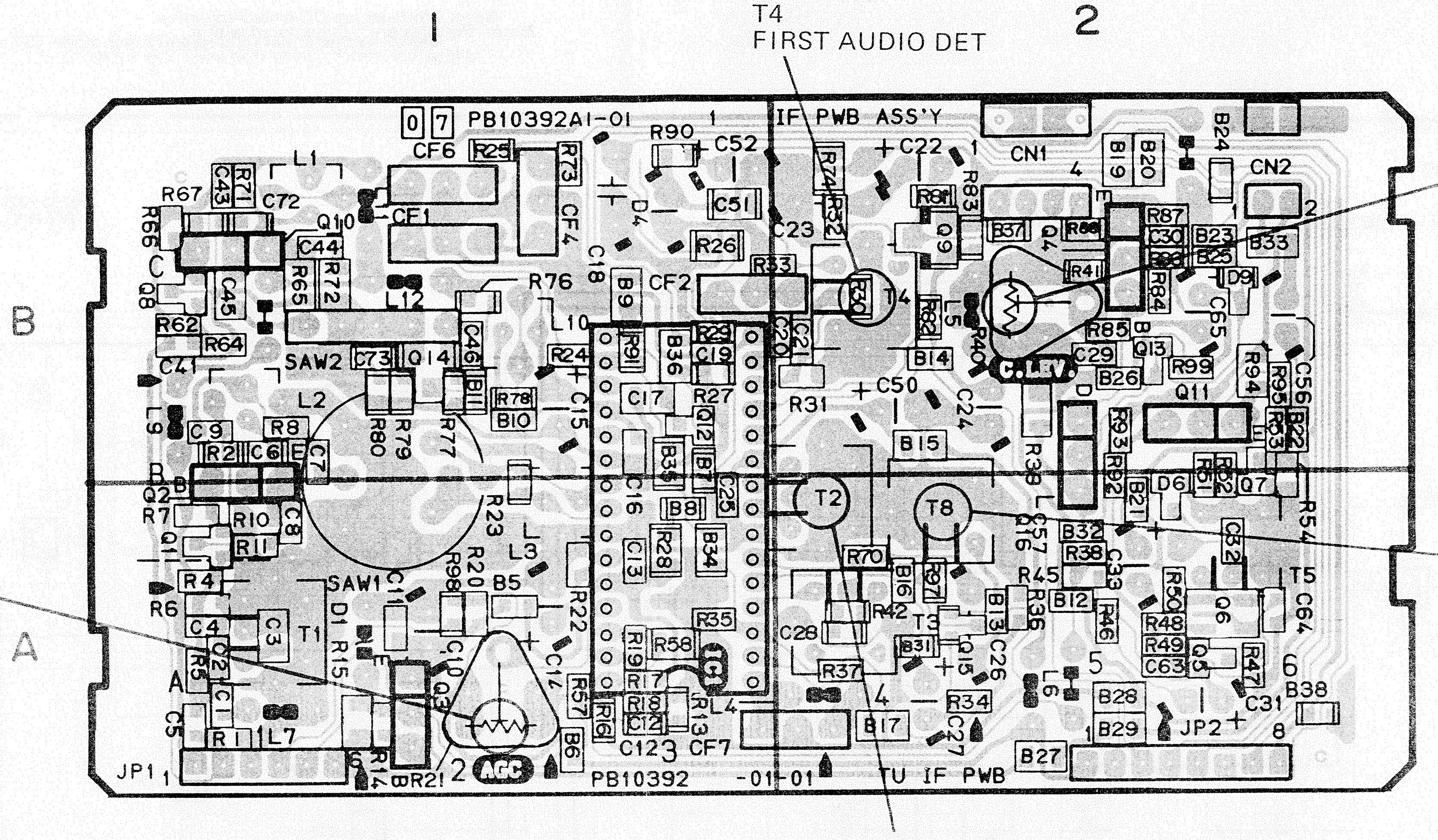
⊛ Address of chip parts
1D
Address



RF CONV & MIXER
Q106 2SC3313CTA
Q103 2SB810H,J
Q104 DTC144EU
CN102
GND
A MUTE
TUNER CTL
PLL DATA
SYNC DET
PLL CLOCK
LOCK DET
From/To 04 MECHACON (A/S/M) CN609 (Page 3-31)
TUNER VIDEO OUT
GND
CN1
To 10 VIDEO INTERFACE CN2 (Page 3-46)
JP4
SIF OUT
AUDIO OUT
GND
To 14 DEMODULATOR JP4 (Page 3-59)
CN2
VPS VIDEO OUT
GND
To 06 TERMINAL CN201 (Page 3-64)
JP2
GND
AUDIO
SIF
NC
SYNC DET
MUTE
JP1
GND
IF
GND
NC
AGC
SWD 12V
JP3
GND
SWD 12V
NC
To 14 DEMODULATOR JP3 (Page 3-59)
CN101
UNSW 5V
45V
UNSW 12V
GND
From 18 REGULATOR(2) CN4 (Page 3-24)
TNR 101
DATA
CLOCK
LOCK
PB
TU2
IF
MB
AGC
TU1
R108 15K
R109 1.8K
Q104
Q103
C126 0.01
R130 330
Q106
C107 470P
R132 10K
C106 330P
C105 0.001
C114 100/16
C104 0.001
L105 1.0
C123 10/50
R103 15K
D101 HZT33-02
L101 0.22
C101 100/16
C102 2.2/50
L102 6.8
R102 100K
D102 E-452-2-T2
08 TUNER CTL
07 IF
Q8 2SA1532(C)
Q4 2SA933S(S)
Q5,Q7 2SD1819A(RS)
Q6 FMS2
Q16 2SK381(C)
Q12,Q13 DTC144EU
Q11 2SC3311A(RS)
SWD 12V
R87 2.2K
R84 39K
R99 1M
Q16
Q4
R38 1.8K
R39 2.7K
R40 COLOR LEVEL
Q13
R85 7.5K
C29 47P
R40 10K
L5 22
C33 0.47/50
D6
R54 8.2K
R52 22K
Q7
R51 22K
D5 DA204U
C32 0.01
T5 SYNC 15.625 KHz
C64 390P
R47 15K
C63 0.001
C31 3.3/50
R93 2.2K
R94 330
C56 33/16
R32 1K
Q8
Q6
Q5
R53 10K
R50 820
R48 3.9K
R46 100K
R49 10K
R45 470
R92 2.2K
Q11
R95 68
R33 39K
T4 SOUND DET 5.5MHz
L11 6.8
R62 3.9K
R66 2.2K
R71 680
L1 0.82
L12 6.8
CF4 5.5MHz
CF1 5.5MHz
R73 330
IC1 M51365SP
IC1
C41 0.001
SAW2
C45 0.001
Q10
C17 0.022
C19 0.01
C20 0.001
C21 100P
R31 3.3K
R64 1.8K
C44 0.001
C43 0.0022
C46 0.001
Q12
R24 820
LIM
F.M. DE
R65 220
R72 56
L9 6.8
R5 180
R4 3.9K
R7 2.2K
R8 680
L2 0.56
C15 33/16
C16 0.0022
SIF DET
C24 1/50
C5 0.001
C2 7P
C4 5P
C9 0.0022
T2 VCO 38.9MHz
Q1
SAW1
C1 10P
T1 40.37 MHz
Q2
C7 0.001
L3 1.0
IF AMP
VCO
C25 0.0022
R1 75
C3 100P
R6 2.7K
C8 0.001
R10 470
R11 100
C14 0.47/25
IF AGC
PHASE DET
C27 0.47/50
C50 33/16
L7 0.22
R22 820K
R70 22
R34 47
R36 560
T8 250KHz
C10 100/16
C11 0.01
C13 0.0022
AFC
D1 MTZ10D
RF AGC
C26 0.0022
L6 6.8
R14 100
Q3
R21 RF AGC
R20 2.2K
R21 4.7K
R19 2.2K
VIDEO DET
R35 560
R15 1K
EQ
LOCK CTL
R18 3.3K
BNC
R57 15K
R17 5.6K
CF7 5.5MHz
L4 8.2
R37 120
Q1 2SA1532(C)
Q2,Q10 2SC3354
Q3 2SC1317(RS)
1
2
3
4
5
6
A
B
C
E
F
G
H

3.29 IF AND TUNER CONTROL CIRCUIT BOARDS

– TUNER IF –


1
2
B
A
07 PB10392A1-01
IF PWB ASS'Y
CN1
CN2
PB10392 -01-01
TU IF PWB
JP1
JP2
C.LEV
AGC
SAW1
SAW2
Q10
L12
R76
CF1
CF2
CF4
CF6
CF7
T1
T2
T3
T4
T5
T8

T4
FIRST AUDIO DET

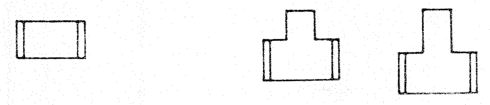
R40
COLOUR LEVEL

R21
RF AGC

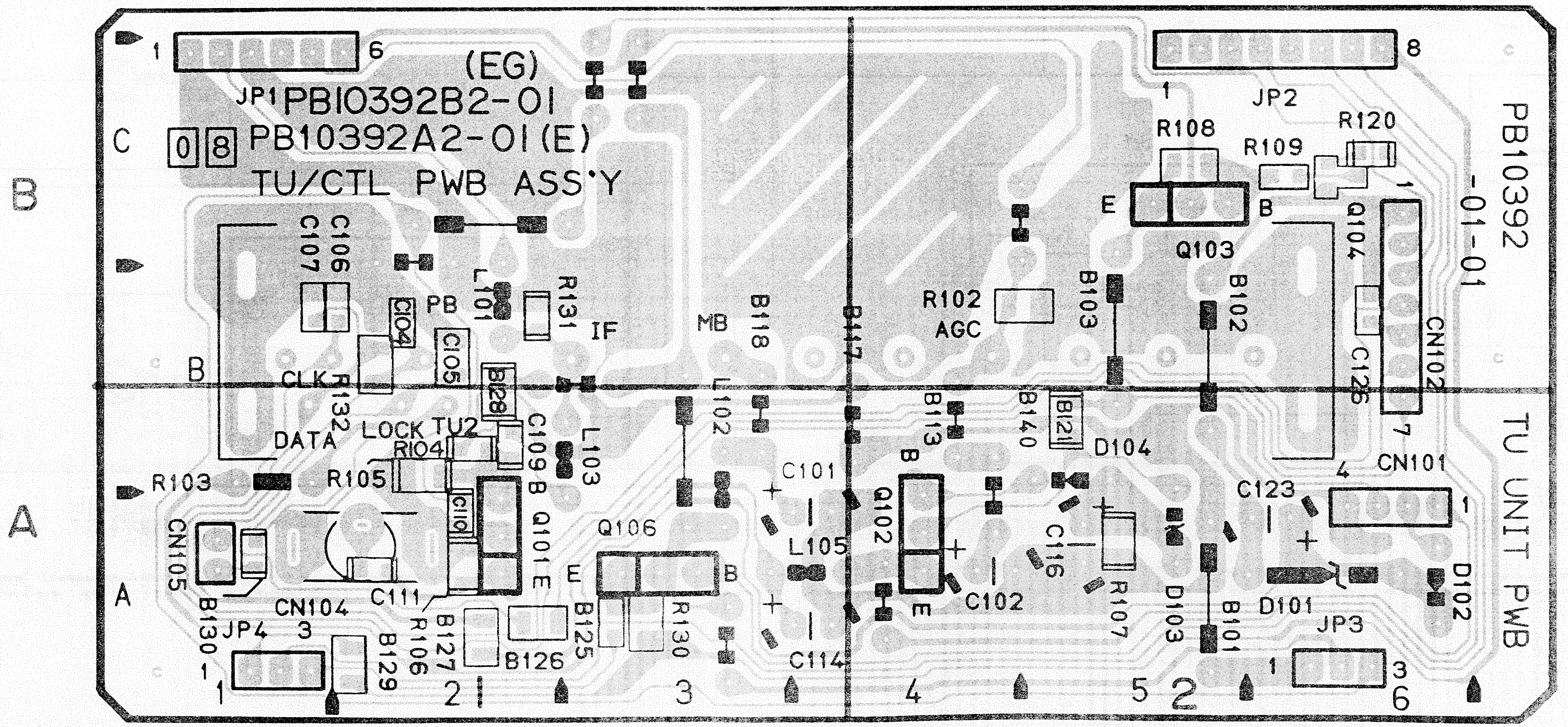
T8
BUZZ

T2
VCO

Note: Double edging indicates not used in this model.
Examples ; Resistor, Capacitor, Transistor, DIODE



– TUNER CONTROL –

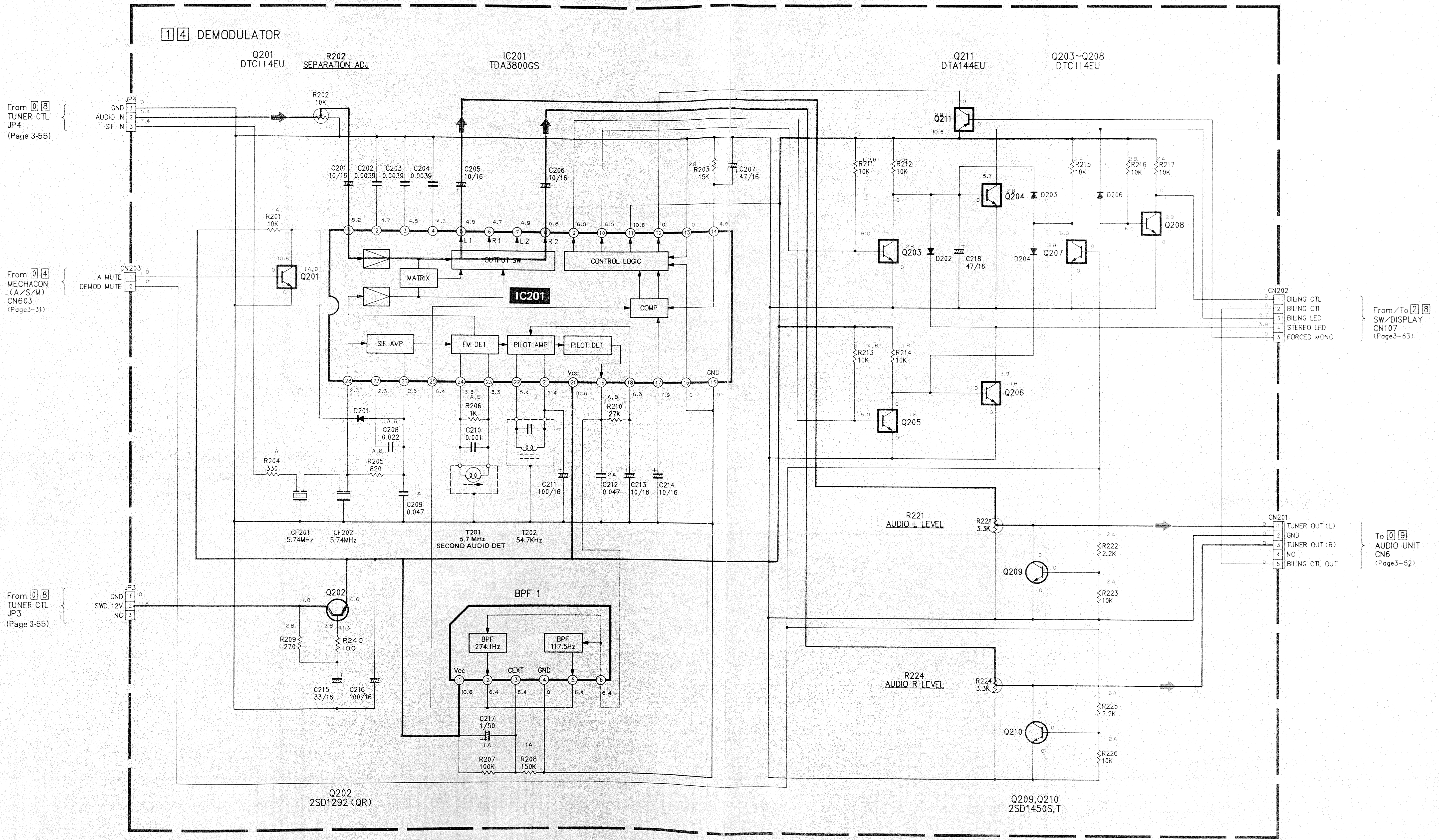

B
A
C
(EG)
JP1 PB10392B2-01
08 PB10392A2-01(E)
TU/CTL PWB ASS'Y
PB10392 -01-01
TU UNIT PWB
JP2
JP3
JP4
CN101
CN102
CN104
CN105
Q101
Q102
Q103
Q104
Q106
R102 AGC
PB
IF
MB
CLK
DATA
LOCK TU2
D101
D102
D103
D104
1
2

3.30 DEMODULATOR SCHEMATIC DIAGRAM

Note: Voltages are DC-measured with a digital voltmeter during stop and tuner mode. (3 ch)

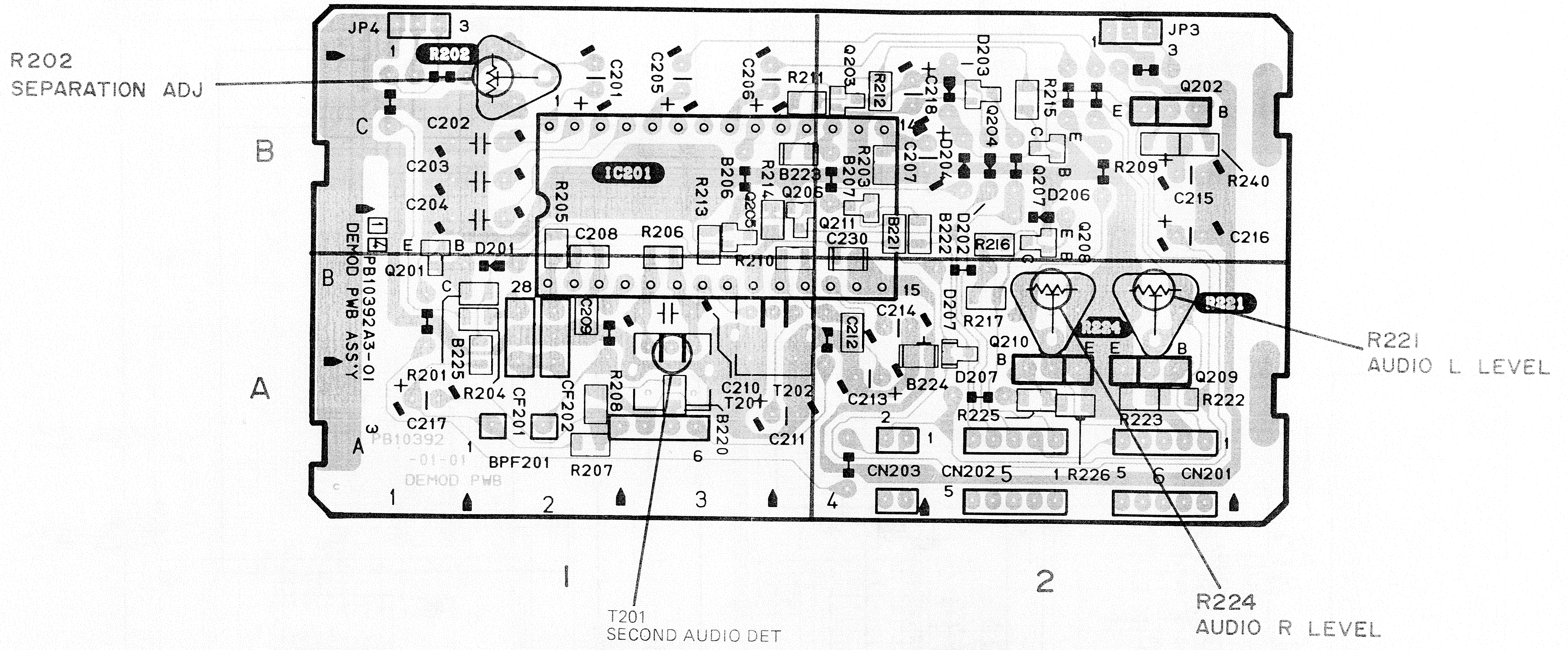
● Address of chip parts

1D
Address

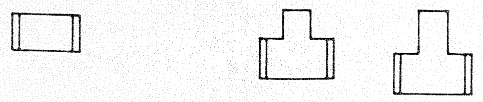


1 4 DEMODULATOR
Q201
DTC114EU
R202
SEPARATION ADJ
IC201
TDA3800GS
Q211
DTA144EU
Q203~Q208
DTC114EU
From 0 8
TUNER CTL
JP4
(Page 3-55)
GND
AUDIO IN
SIF IN
From 0 4
MECHACON
(A/S/M)
CN603
(Page3-31)
A MUTE
DEMOD MUTE
CN203
From 0 8
TUNER CTL
JP3
(Page 3-55)
GND
SWD 12V
NC
R202 10K
C201 10/16
C202 0.0039
C203 0.0039
C204 0.0039
C205 10/16
C206 10/16
R203 15K
C207 47/16
R201 10K
OUTPUT SW
MATRIX
CONTROL LOGIC
COMP
IC201
SIF AMP
FM DET
PILOT AMP
PILOT DET
Vcc
GND
L1
R1
L2
R2
D201
C208 0.022
R204 330
R205 820
C209 0.047
R206 1K
C210 0.001
R210 27K
C211 100/16
C212 0.047
C213 10/16
C214 10/16
CF201 5.74MHz
CF202 5.74MHz
T201 5.7 MHz SECOND AUDIO DET
T202 54.7KHz
Q202
R209 270
R240 100
C215 33/16
C216 100/16
Q202
2SD1292 (QR)
BPF 1
BPF 274.1Hz
BPF 117.5Hz
Vcc
CEXT
GND
C217 1/50
R207 100K
R208 150K
R211 10K
R212 10K
R213 10K
R214 10K
R215 10K
R216 10K
R217 10K
Q203
Q204
Q205
Q206
Q207
Q208
D202
D203
D204
D206
C218 47/16
CN202
BILING CTL
BILING CTL
BILING LED
STEREO LED
FORCED MONO
From/To 2 8
SW/DISPLAY
CN107
(Page3-63)
R221
AUDIO L LEVEL
R221 3.3K
R222 2.2K
R223 10K
Q209
R224
AUDIO R LEVEL
R224 3.3K
R225 2.2K
R226 10K
Q210
Q209,Q210
2SD1450S,T
CN201
TUNER OUT (L)
GND
TUNER OUT (R)
NC
BILING CTL OUT
To 0 9
AUDIO UNIT
CN6
(Page3-52)

3.31 DEMODULATOR CIRCUIT BOARD

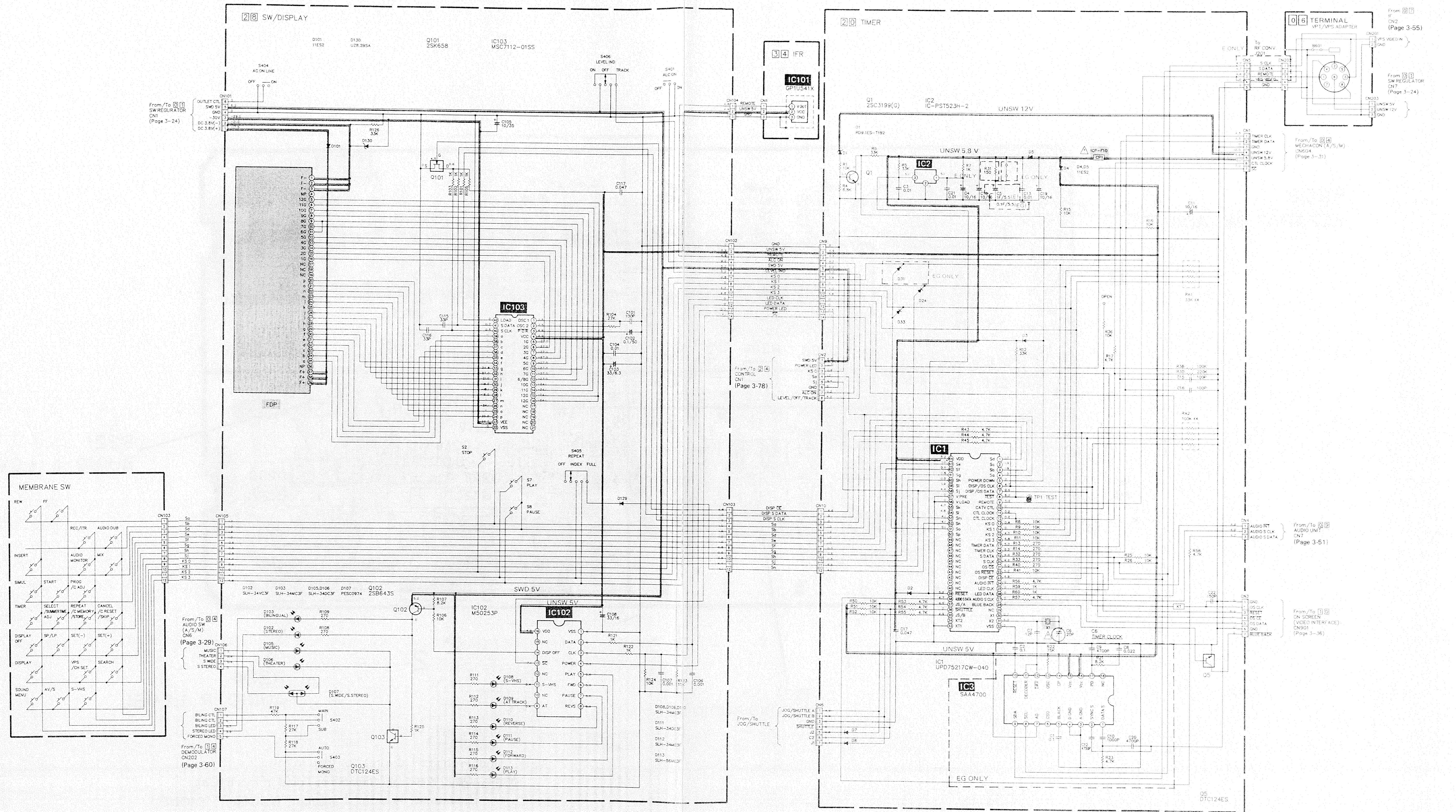

R202
SEPARATION ADJ
R221
AUDIO L LEVEL
R224
AUDIO R LEVEL
T201
SECOND AUDIO DET
JP4
JP3
IC201
Q201
Q202
Q203
Q204
Q205
Q206
Q207
Q208
Q209
Q210
Q211
D201
D202
D203
D204
D206
D207
C201
C202
C203
C204
C205
C206
C207
C208
C209
C210
C211
C212
C213
C214
C215
C216
C217
C218
C230
R201
R203
R204
R205
R206
R207
R208
R209
R210
R211
R212
R213
R214
R215
R216
R217
R222
R223
R225
R226
R240
B206
B207
B220
B221
B222
B223
B224
B225
CF201
CF202
BPF201
T202
CN201
CN202
CN203
DEMOD PWB ASS'Y
PB10392A3-01
PB10392
-01-01
DEMOD PWB
A
B
1
2
3
4
1
2

Note: Double edging indicates not used in this model.
Examples; Resistor, Capacitor, Transistor, DIODE



3.32 TIMER, SW/DISPLAY, IFR AND MEMBRANE SCHEMATIC DIAGRAMS

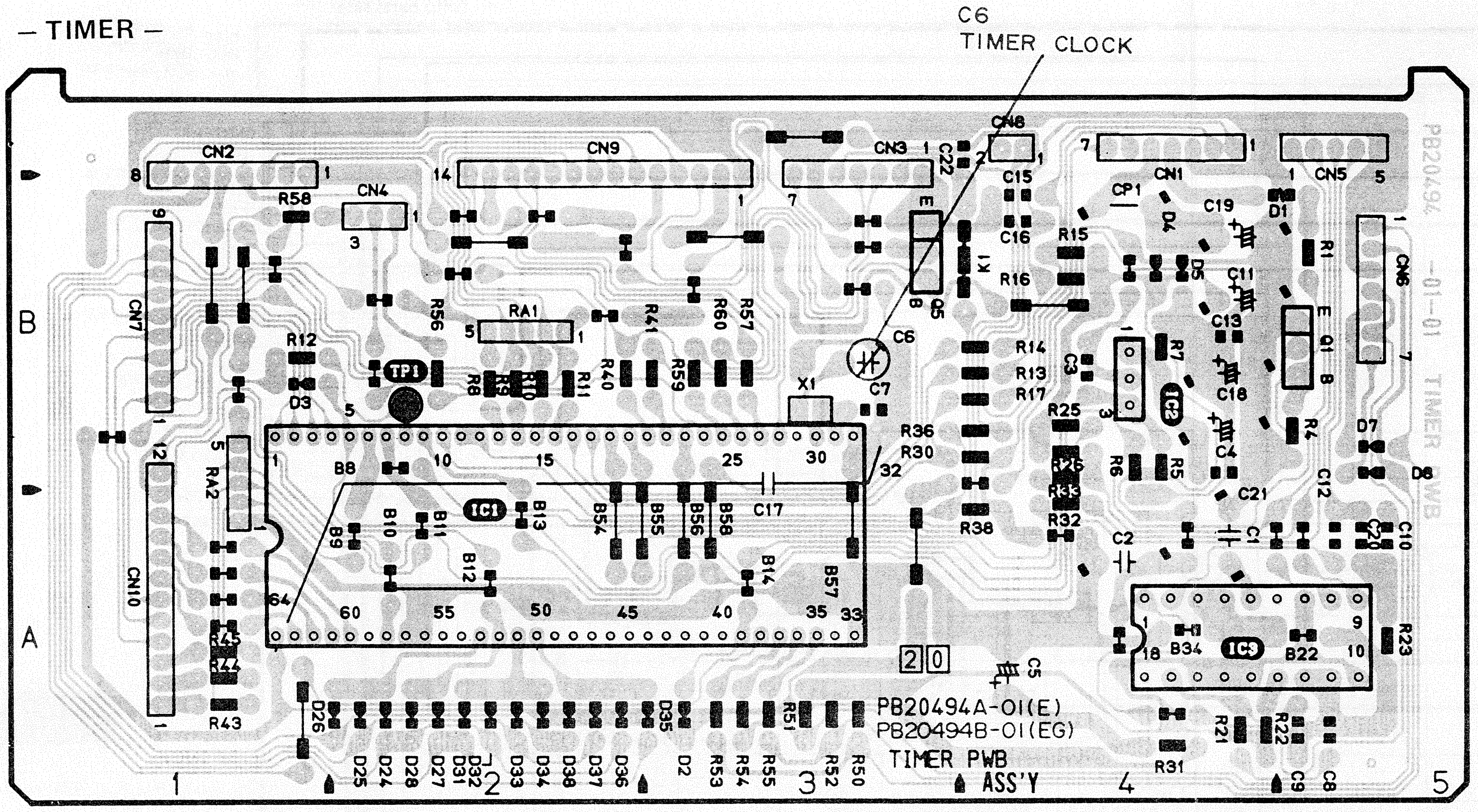
Note: Voltages are DC-measured with a digital voltmeter during stop and tuner mode.


28 SW/DISPLAY
D101 11ES2
D130 UZ8.2BSA
Q101 2SK658
IC103 MSC7112-01SS
S404 AC ON LINE
S406 LEVEL IND
OFF TRACK
From/To 01 SW REGULATOR CN1 (Page 3-24)
OUTLET CTL
SWD 5V
GND
-30V
DC 3.8V(-)
DC 3.8V(+)
CN101
FDP
IC103
C115 33P
C116 33P
R104 2.7K
C101 100P
C117 0.047
C105 10/35
R126 33K
D101
D130
Q101
S2 STOP
S405 REPEAT
OFF INDEX FULL
S7 PLAY
S8 PAUSE
D129
MEMBRANE SW
REW
FF
REC/ITR
AUDIO DUB
INSERT
AUDIO MONITOR
MIX
SIMUL
START
PROG /C.ADJ
TIMER
SELECT /SUMMERTIME ADJ
REPEAT /C.MEMORY /STORE
CANCEL /C.RESET /SKIP
DISPLAY OFF
SP/LP
SET(-)
SET(+)
DISPLAY
VPS /CH SET
SEARCH
SOUND MENU
AV/S
S-VHS
CN103
CN105
SWD 5V
Q102 2SB643S
D102 SLH-34VC3F
D103 SLH-34MC3F
D105,D106 SLH-34GC3F
D107 PESC0974
From/To 04 AUDIO SW (A/S/M) CN6 (Page 3-29)
MUSIC
THEATER
S MODE
S STEREO
CN106
D103 (BILINGUAL)
D102 (STEREO)
D105 (MUSIC)
D106 (THEATER)
D107 (S.WIDE/S.STEREO)
CN107
BILNG CTL
BILNG CTL
BILNG LED
STEREO LED
FORCED MONO
From/To 14 DEMODULATOR CN202 (Page 3-60)
MAIN
SUB
S402
AUTO
FORCED MONO
S403
Q103 DTC124ES
IC102 M50253P
UNSW 5V
IC102
VDD VSS
NC DATA
DISP OFF CLK
SE POWER
NC PLAY
S-VHS FWD
NC PAUSE
AT REVS
D108 (S-VHS)
D109 (AT TRACK)
D110 (REVERSE)
D111 (PAUSE)
D112 (FORWARD)
D113 (PLAY)
D108,D109,D110 SLH-34MC3F
D111 SLH-34GC3F
D112 SLH-34MC3F
D113 SLH-56MC3F
34 IFR
IC101 GP1U541X
VOUT VCC GND
CN104
REMOTE
UNSW 5V
GND
CN3
S401 ALC ON
CN102
GND
UNSW 5V
POWER LED
ALC ON
SWD 5V
LEVEL IND
KS 0
KS 1
KS 2
KS 3
LED CLK
LED DATA
POWER LED
CN9
DISP CE
DISP S DATA
DISP S CLK
20 TIMER
Q1 2SC3199(Q)
IC2 IC-PST523H-2
UNSW 12V
D1 RD4.1ES-T1B2
UNSW 5.8 V
IC2
E ONLY
EG ONLY
D4,D5 11ES2
D31
D24
D33
OPEN
From/To 24 CONTROL CN1 (Page 3-78)
SWD 5V
POWER LED
KS 0
Sj
GND
ALC ON
LEVEL/OFF/TRACK
IC1
VDD
POWER DOWN
DISP/OS CLK
DISP/OS DATA
TEST
REMOTE
CATV CTL
CTL CLOCK
TIMER DATA
TIMER CLK
S DATA
S CLK
OS CE
OS RESET
DISP CE
AUDIO RT
LED CLK
LED DATA
RESET
AUDIO S CLK
AUDIO S DATA
SHUTTLE
BLUE BACK
JS/A
JS/B
X1 X2 XT1 XT2
VSS
TP1 TEST
UNSW 5V
X1
C6 TIMER CLOCK
IC1 UPD75217CW-040
IC3 SAA4700
EG ONLY
From/To JOG/SHUTTLE
JOG/SHUTTLE A
JOG/SHUTTLE B
GND
SHUTTLE
CN6
D7
D8
06 TERMINAL
VPT/VPS ADAPTER
E ONLY
To RF CONV
S CLK
S DATA
REMOTE
GND
CN201
From 07 IF CN2 (Page 3-55)
VPS VIDEO IN
From 01 SW REGULATOR CN7 (Page 3-24)
UNSW 5V
UNSW 12V
GND
CN203
CN1
TIMER CLK
TIMER DATA
GND
UNSW 12V
UNSW 5.8V
CTL CLOCK
From/To 04 MECHACON (A/S/M) CN604 (Page 3-31)
CN4
AUDIO RT
AUDIO S CLK
AUDIO S DATA
From/To 02 AUDIO UNIT CN7 (Page 3-51)
CN3
GND
OS CLK
RESET
OS DATA
GND
BLUE BACK
From/To 10 ON SCREEN (VIDEO INTERFACE) CN901 (Page 3-36)
Q5
Q5 DTC124ES

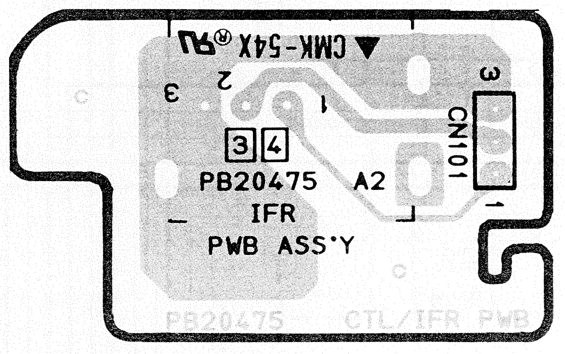
A
B
C
E
F
G
H
1
2
3
4
5

3.33 TIMER, SW/DISPLAY AND IFR CIRCUIT BOARDS

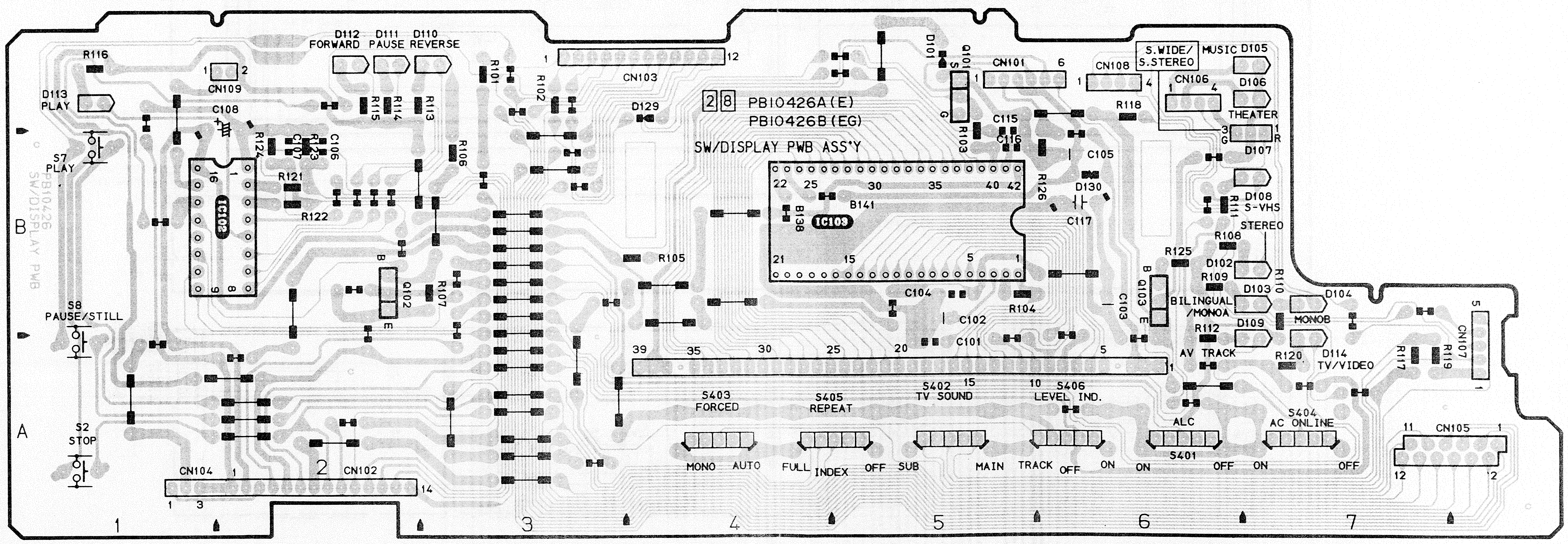
– TIMER –


C6
TIMER CLOCK
CN2
CN9
CN3
CN8
CN1
CN5
CN4
CN6
CN7
CN10
RA1
RA2
TP1
IC1
IC2
IC3
X1
CP1
K1
PB20494A-01(E)
PB20494B-01(EG)
TIMER PWB
ASS'Y
PB20494 -01-01 TIMER PWB
2 0

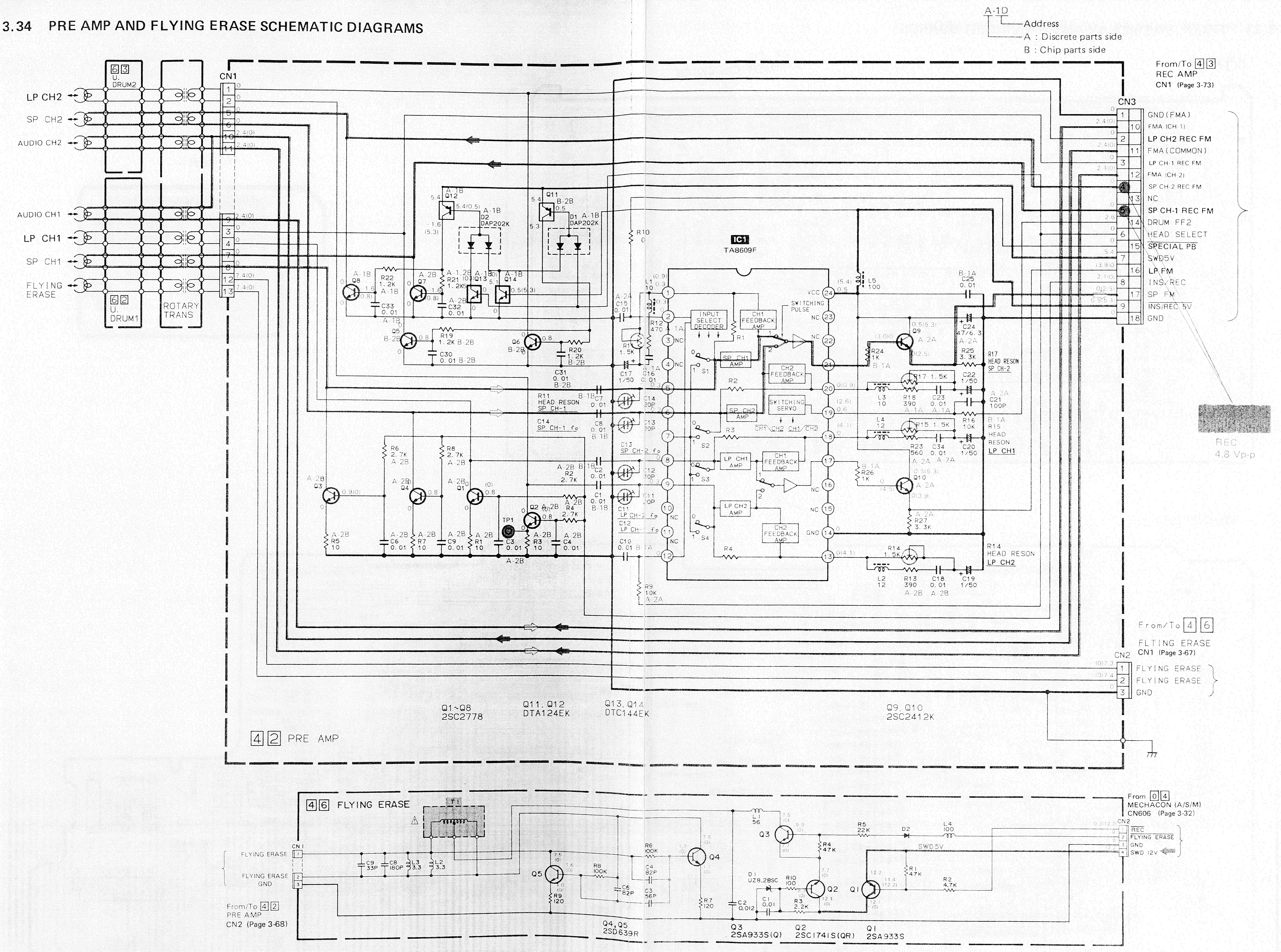
– IFR –


CMK-54X
CN101
3 4
PB20475 A2
IFR
PWB ASS'Y
PB20475 CTL/IFR PWB

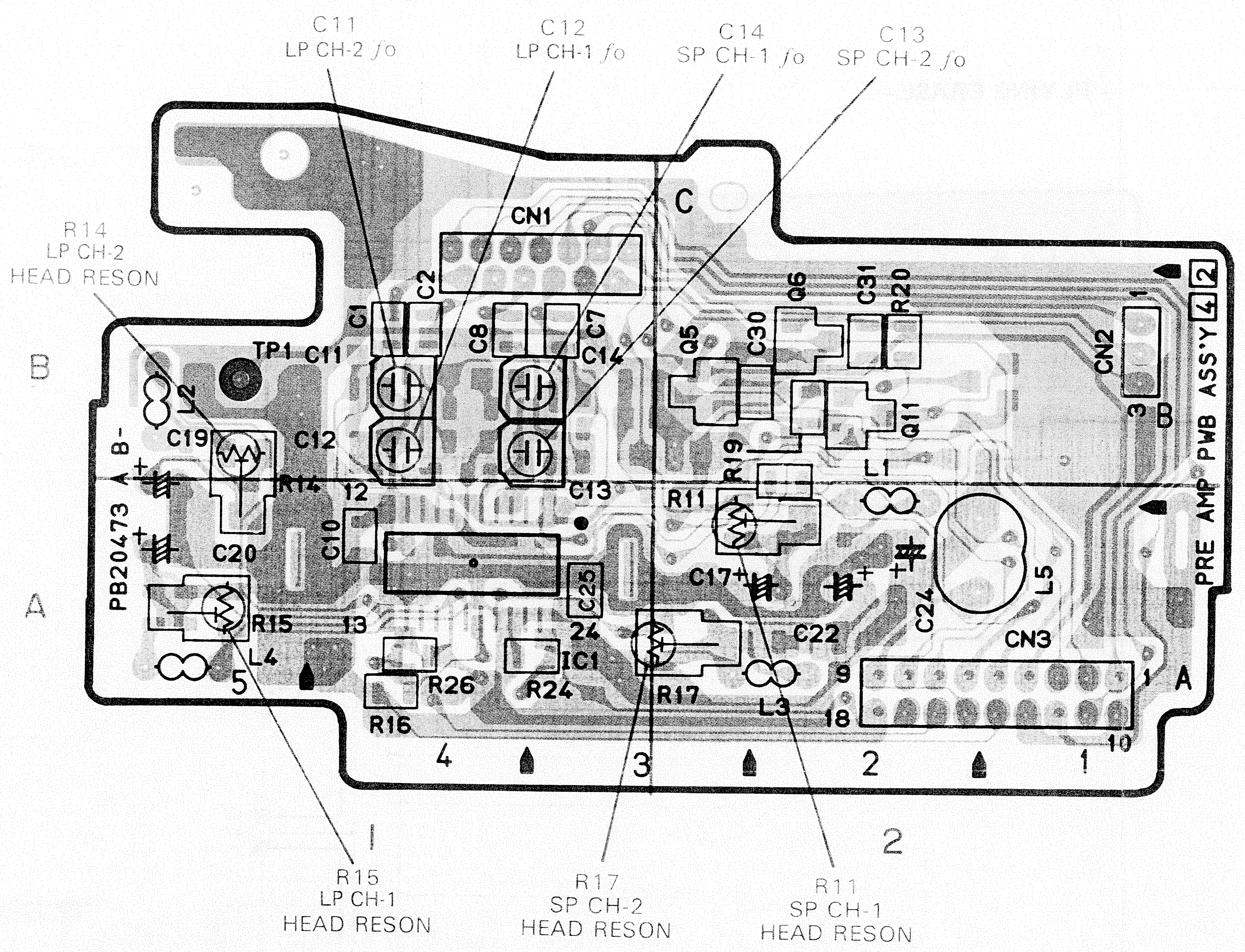
– SW/DISPLAY –


D112 FORWARD
D111 PAUSE
D110 REVERSE
D113 PLAY
S7 PLAY
S8 PAUSE/STILL
S2 STOP
CN109
CN103
CN101
CN108
CN106
CN104
CN102
CN105
CN107
IC102
IC103
2 8
PB10426A(E)
PB10426B(EG)
SW/DISPLAY PWB ASS'Y
PB10426 SW/DISPLAY PWB
S.WIDE/ S.STEREO
MUSIC D105
D106
THEATER
D107
D108 S-VHS
STEREO
D102
D103
BILINGUAL /MONOA
D109
D104
MONOB
D114 TV/VIDEO
AV TRACK
S403 FORCED
S405 REPEAT
S402 TV SOUND
S406 LEVEL IND.
ALC
S401
S404 AC ONLINE
MONO
AUTO
FULL
INDEX
OFF
SUB
MAIN
TRACK
OFF
ON
ON
OFF
ON
OFF

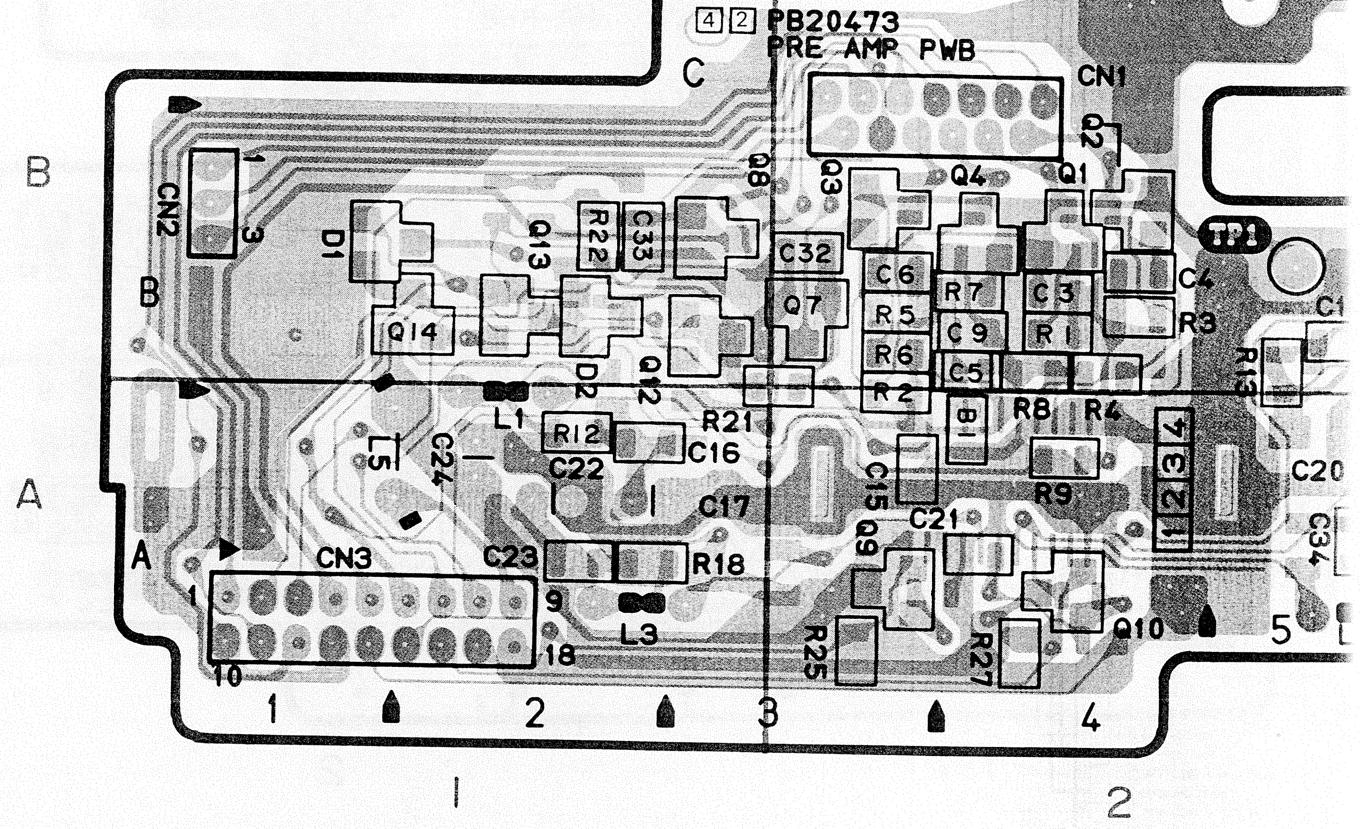
3.34 PRE AMP AND FLYING ERASE SCHEMATIC DIAGRAMS


A-1D
Address
A : Discrete parts side
B : Chip parts side
LP CH2
SP CH2
AUDIO CH2
AUDIO CH1
LP CH1
SP CH1
FLYING ERASE
63 U. DRUM2
62 U. DRUM1
ROTARY TRANS
CN1
IC1 TA8609F
VCC
SWITCHING PULSE
INPUT SELECT DECODER
CH1 FEEDBACK AMP
CH2 FEEDBACK AMP
SP CH1 AMP
SP CH2 AMP
SWITCHING SERVO
LP CH1 AMP
LP CH2 AMP
R11 HEAD RESON SP CH-1
R17 HEAD RESON SP CH-2
R15 HEAD RESON LP CH1
R14 HEAD RESON LP CH2
From/To 43 REC AMP CN1 (Page 3-73)
CN3
GND (FMA)
FMA (CH 1)
LP CH2 REC FM
FMA (COMMON)
LP CH-1 REC FM
FMA (CH-2)
SP CH-2 REC FM
NC
SP CH-1 REC FM
DRUM FF2
HEAD SELECT
SPECIAL PB
SWD5V
LP FM
INS/REC
SP FM
INS/REC 5V
GND
REC 4.8 Vp-p
From/To 46 FLTING ERASE CN1 (Page 3-67)
CN2
FLYING ERASE
FLYING ERASE
GND
Q1~Q8 2SC2778
Q11, Q12 DTA124EK
Q13, Q14 DTC144EK
Q9, Q10 2SC2412K
D1, D2 DAP202K
42 PRE AMP
46 FLYING ERASE
T1
From/To 42 PRE AMP CN2 (Page 3-68)
From 04 MECHACON (A/S/M) CN606 (Page 3-32)
REC
FLYING ERASE
GND
SWD (12V)
SWD 5V
D1 UZ8.2BSC
Q4, Q5 2SD639R
Q3 2SA933S(Q)
Q2 2SC1741S(QR)
Q1 2SA933S
A B C D E F G H
1 2 3 4 5 6

3.35 PRE AMP AND FLYING ERASE CIRCUIT BOARDS

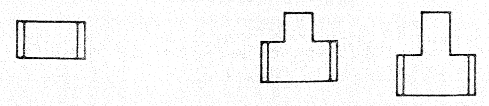

— Rear —
(B)

C11
LP CH-2 fo
C12
LP CH-1 fo
C14
SP CH-1 fo
C13
SP CH-2 fo
R14
LP CH-2
HEAD RESON
B
A
C
CN1
C1
C2
C8
C7
C14
TP1
C11
Q5
C30
Q6
C31
R20
Q11
CN2
3
B
PRE AMP PWB ASS'Y
4 2
L2
C19
C12
R14
12
C13
R11
R19
L1
PB20473 A B-
C10
C25
24
C17
C20
R15
13
IC1
C22
C24
L5
CN3
L4
5
R26
R24
R17
L3
9
18
1
10
A
R16
4
3
2
1
1
2
R15
LP CH-1
HEAD RESON
R17
SP CH-2
HEAD RESON
R11
SP CH-1
HEAD RESON


— Front —
(A)

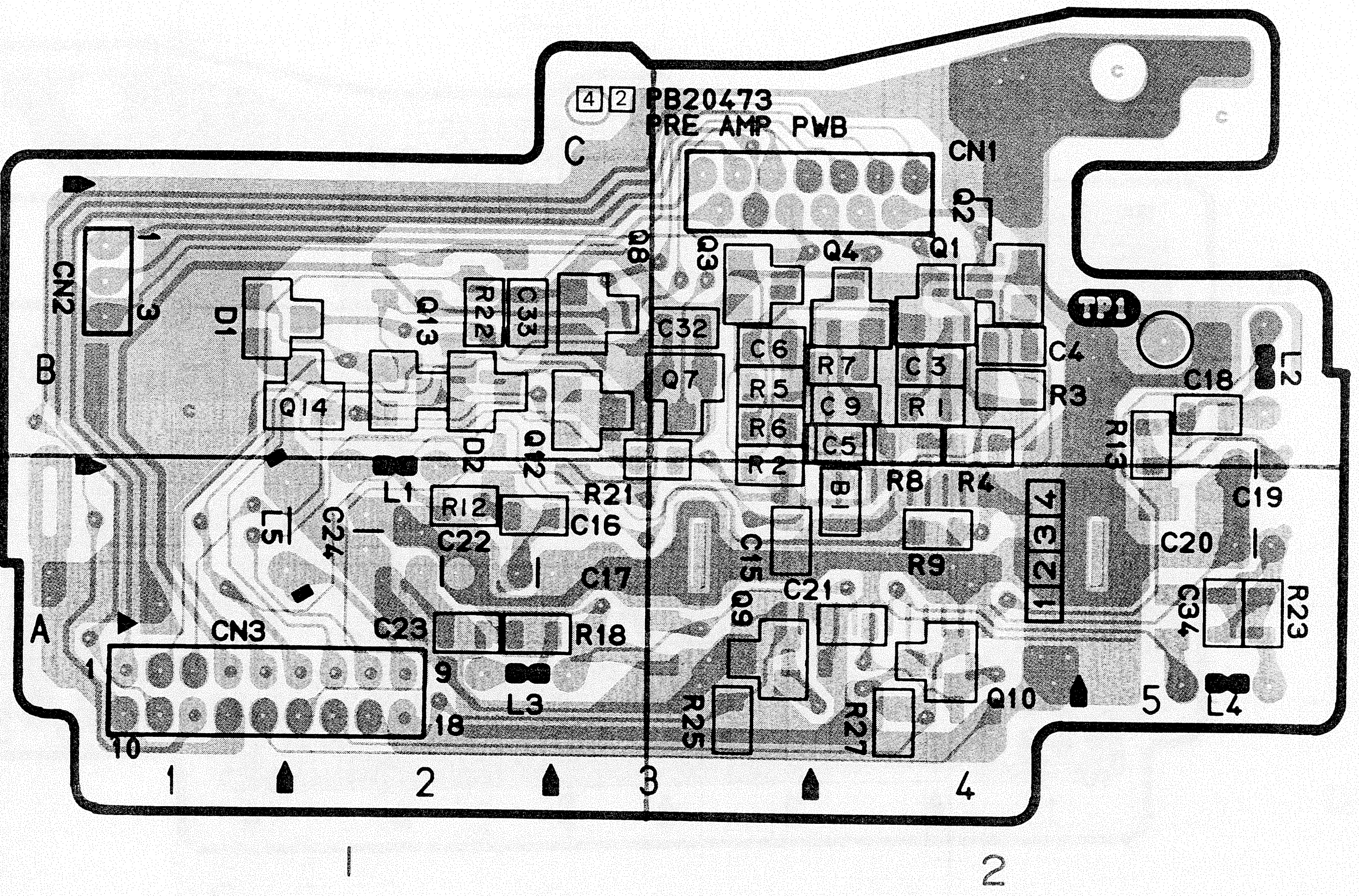
4 2 PB20473
PRE AMP PWB
C
CN1
Q2
B
CN2
1
3
D1
Q13
R22
C33
Q8
Q3
Q4
Q1
TP1
C32
C6
R7
C3
C4
Q14
Q7
R5
C9
R1
R3
R6
C5
R13
D2
Q12
R2
B
L1
R21
B1
R8
R4
R12
L5
C24
C16
C22
C20
C15
R9
C17
C21
A
A
CN3
C23
R18
Q9
C34
1
9
L3
18
10
R25
R27
Q10
5
1
2
3
4
1
2

Note: Double edging indicates not used in this model.
Examples; Resistor, Capacitor, Transistor, DIODE

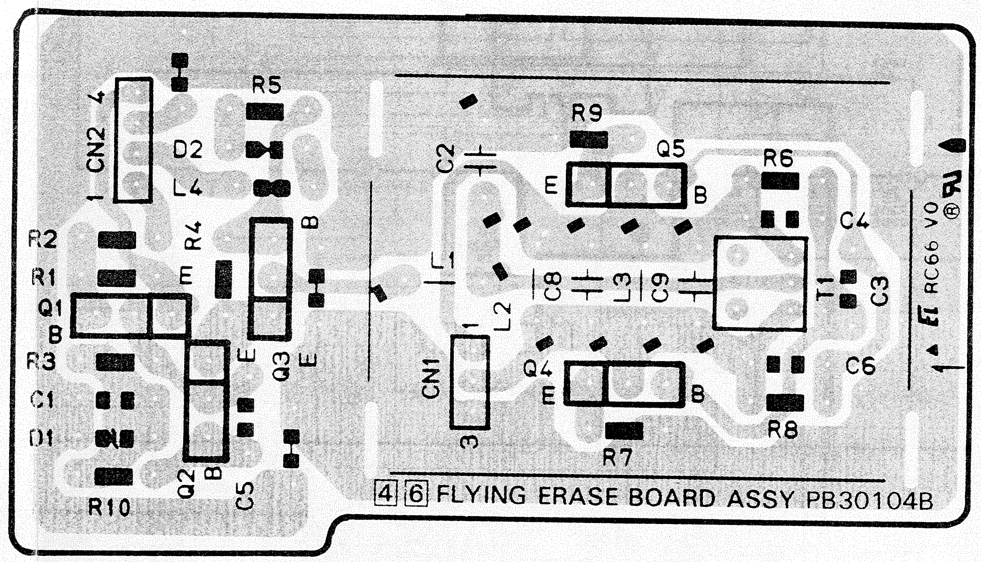


6
5
4
3
2
1
A
B
C
E
F
G

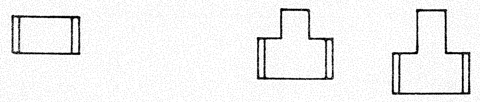
– Front –
(A)


4 2 PB20473
PRE AMP PWB
CN1
CN2
CN3
C
B
A
Q1
Q2
Q3
Q4
Q7
Q8
Q9
Q10
Q12
Q13
Q14
D1
D2
TP1
R1
R2
R3
R4
R5
R6
R7
R8
R9
R12
R13
R18
R21
R22
R23
R25
R27
C3
C4
C5
C6
C9
C15
C16
C17
C18
C19
C20
C21
C22
C23
C24
C32
C33
C34
L1
L2
L3
L4
L5
1
2
3
4
5
9
10
18
1
2

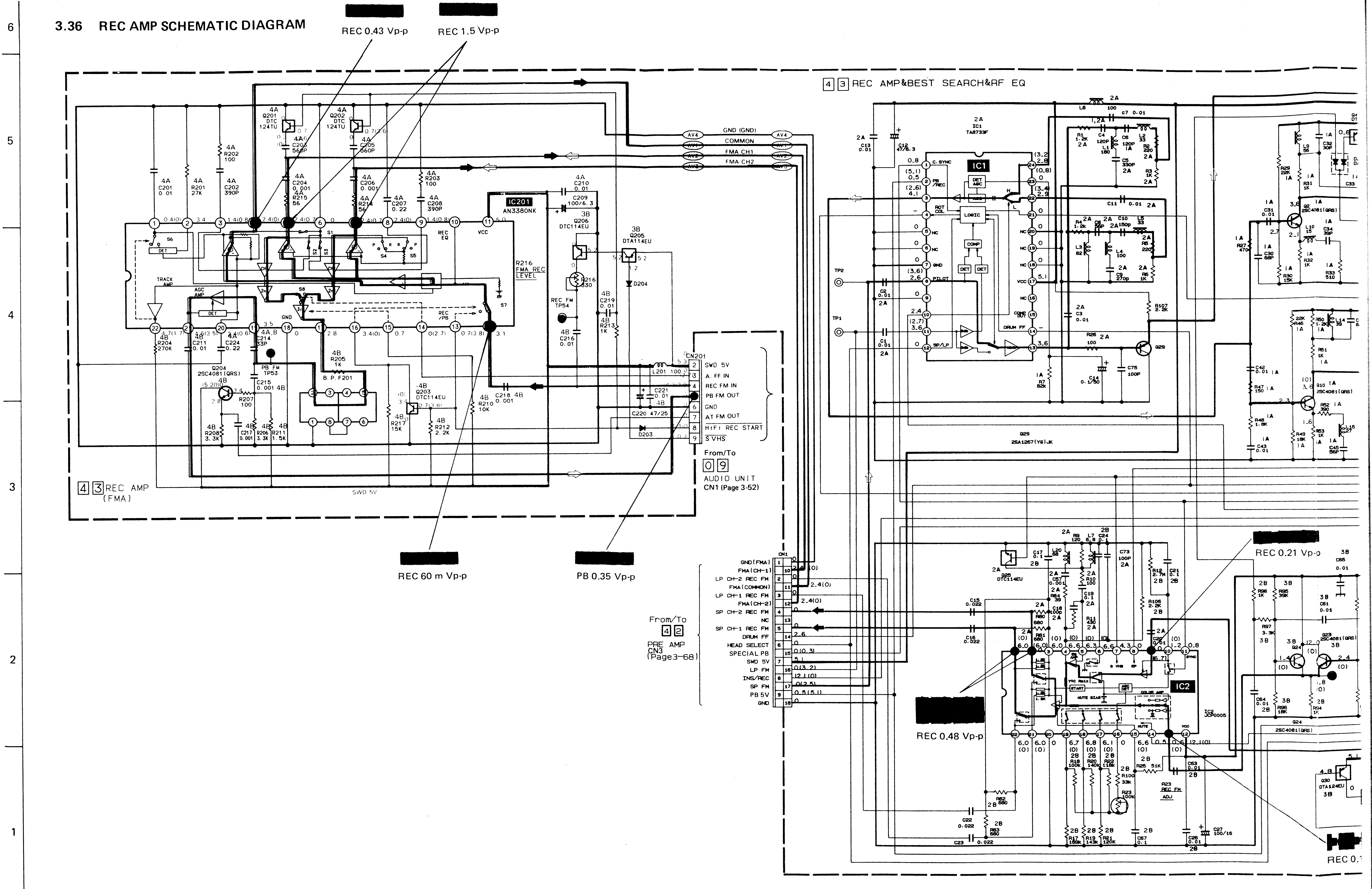
– FLYING ERASE –


CN2
1
4
R5
D2
L4
R2
R1
Q1
B
R3
C1
D1
R10
Q2
B
C5
R4
E
Q3
B
E
E
C2
L1
CN1
1
3
L2
C8
L3
C9
R9
E
Q5
B
R6
C4
T1
C3
RC66 V0
Q4
E
B
C6
R7
R8
4 6 FLYING ERASE BOARD ASSY PB30104B

Note: Double edging indicates not used in this model.
Examples; Resistor, Capacitor, Transistor, DIODE



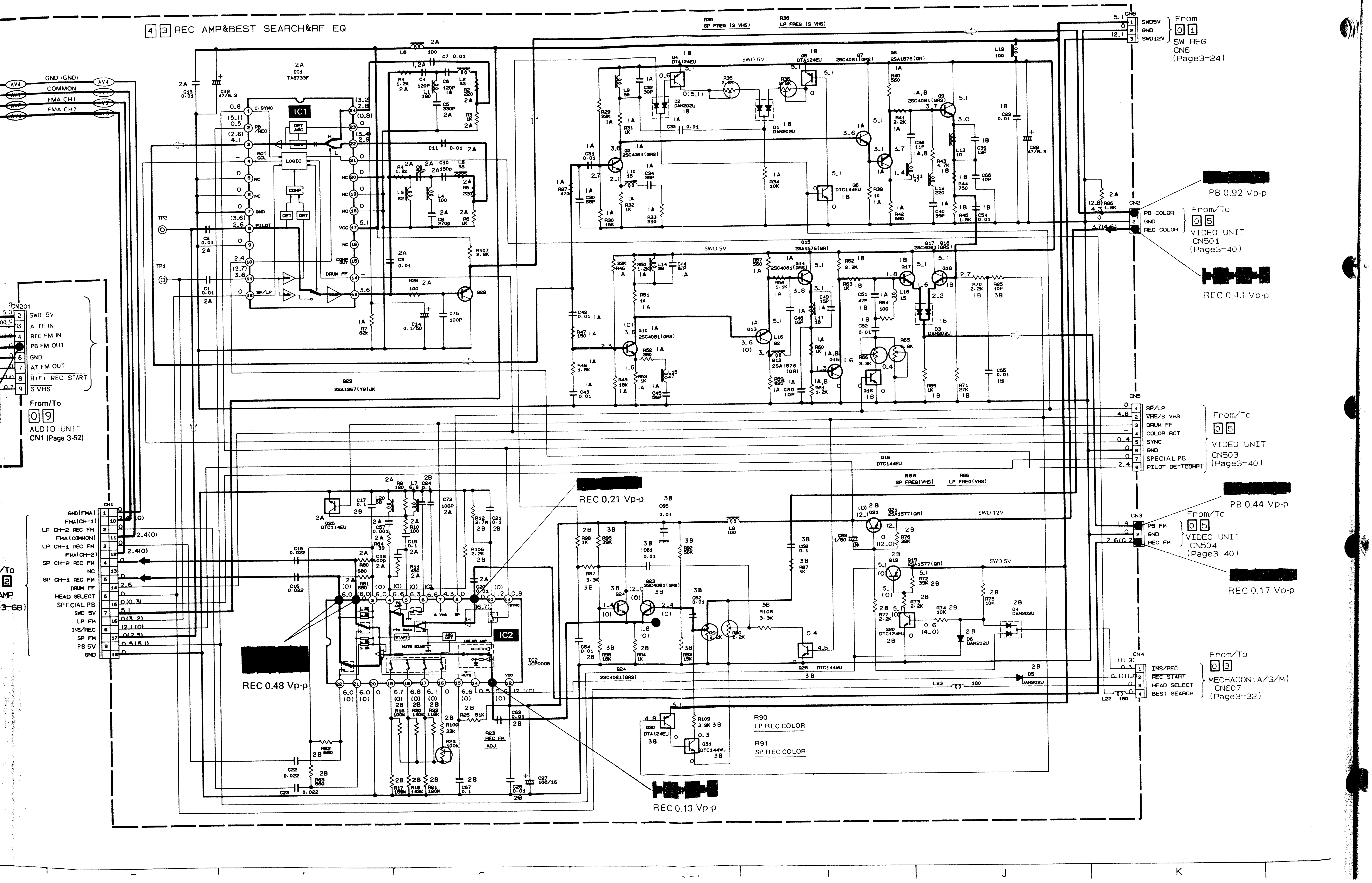
3.36 REC AMP SCHEMATIC DIAGRAM



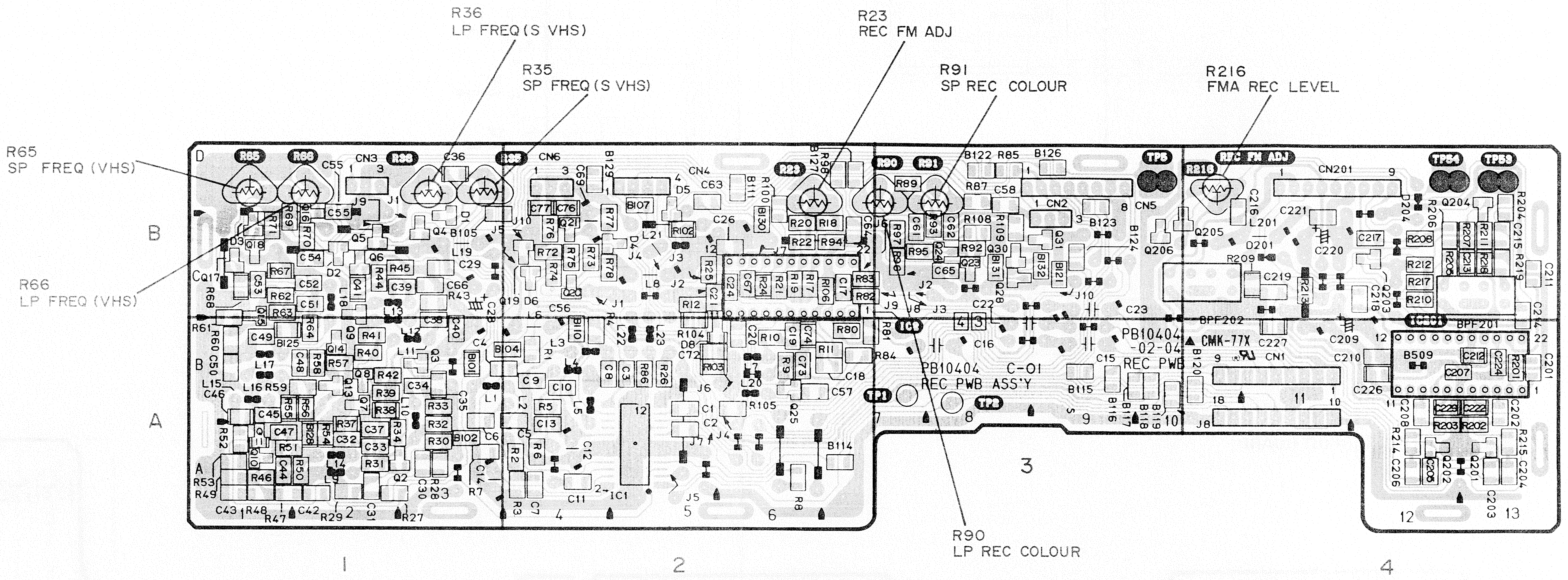
REC 0.43 Vp-p
REC 1.5 Vp-p
REC 60 m Vp-p
PB 0.35 Vp-p
REC 0.21 Vp-p
REC 0.48 Vp-p
4 3 REC AMP&BEST SEARCH&RF EQ
4 3 REC AMP (FMA)
IC201 AN3380NK
IC1 TA8733F
IC2 TC2 JCP0005
Q201 DTC124TU
Q202 DTC124TU
Q203 DTC114EU
Q204 2SC4081(QRS)
Q205 DTA114EU
Q206 DTC114EU
Q29 2SA1267(YG)JK
Q25 DTC114EU
Q30 DTA124EU
GND (GND)
COMMON
FMA CH1
FMA CH2
AV4
AV1
AV2
AV3
CN201
SWD 5V
A. FF IN
REC FM IN
PB FM OUT
GND
AT FM OUT
HiFi REC START
S VHS
From/To
0 9
AUDIO UNIT
CN1 (Page 3-52)
CN1
GND(FMA)
FMA(CH-1)
LP CH-2 REC FM
FMA(COMMON)
LP CH-1 REC FM
FMA(CH-2)
SP CH-2 REC FM
NC
SP CH-1 REC FM
DRUM FF
HEAD SELECT
SPECIAL PB
SWD 5V
LP FM
INS/REC
SP FM
PB 5V
GND
From/To
4 2
PRE AMP
CN3
(Page3-68)
R216 FMA REC LEVEL
REC FM TP54
PB FM TP53
TRACK AMP
AGC AMP
DET
REC EQ
REC /PB
B. P. F201
TP1
TP2
R23 REC FM ADJ
SWD 5V

A B C D E F G

● Address of chip parts
1D
└Address


4 3 REC AMP&BEST SEARCH&RF EQ
IC1 TA8733F
IC2 JCP0005
C.SYNC
PB/REC
ROT COL
PILOT
SP/LP
DRUM FF
COMP OUT
LOGIC
DET ABC
COMP
DET
TP1
TP2
GND (GND)
COMMON
FMA CH1
FMA CH2
AV4
Q29 2SA1267(Y6)JK
CN201
SWD 5V
A. FF IN
REC FM IN
PB FM OUT
GND
AT FM OUT
HiFi REC START
S VHS
From/To
0 9
AUDIO UNIT
CN1 (Page 3-52)
CN1
GND(FMA)
FMA(CH-1)
LP CH-2 REC FM
FMA(COMMON)
LP CH-1 REC FM
FMA(CH-2)
SP CH-2 REC FM
NC
SP CH-1 REC FM
DRUM FF
HEAD SELECT
SPECIAL PB
SWD 5V
LP FM
INS/REC
SP FM
PB 5V
GND
REC 0.48 Vp-p
REC 0.21 Vp-p
REC 0.13 Vp-p
Q25 DTC114EU
R23 REC FM ADJ
START
MUTE BIAS
COLOR AMP
VCC
MUTE
R35 SP FREQ (S VHS)
R36 LP FREQ (S VHS)
SWD 5V
Q4 DTA124EU
Q5 DTA124EU
Q7 2SC4081(QRS)
Q8 2SA1576(QR)
Q9 2SC4081(QRS)
Q2 2SC4081(QRS)
Q6 DTC144EU
D1 DAN202U
D2 DAN202U
Q10 2SC4081(QRS)
Q13 2SA1576(QR)
Q14 2SC4081(QRS)
Q15 2SC4081
Q16
Q17 Q18 2SC4081(QRS)
D3 DAN202U
SWD 12V
Q16 DTC144EU
R66 SP FREQ(VHS)
R66 LP FREQ(VHS)
Q21 2SA1577(QR)
Q19 2SA1577(QR)
Q20 DTC124EU
Q23 2SC4081(QRS)
Q24 2SC4081(QRS)
Q26 DTC144WU
Q30 DTA124EU
Q31 DTC144WU
D4 DAN202U
D5 DAN202U
D6 DAN202U
R90 LP REC COLOR
R91 SP REC COLOR
CN6
SWD5V
GND
SWD12V
From
0 1
SW REG
CN6
(Page3-24)
PB 0.92 Vp-p
CN2
PB COLOR
GND
REC COLOR
From/To
0 5
VIDEO UNIT
CN501
(Page3-40)
REC 0.43 Vp-p
CN5
SP/LP
VHS/S VHS
DRUM FF
COLOR ROT
SYNC
GND
SPECIAL PB
PILOT DET(COMP)
From/To
0 5
VIDEO UNIT
CN503
(Page3-40)
PB 0.44 Vp-p
CN3
PB FM
GND
REC FM
From/To
0 5
VIDEO UNIT
CN504
(Page3-40)
REC 0.17 Vp-p
CN4
INS/REC
REC START
HEAD SELECT
BEST SEARCH
From/To
0 3
MECHACON(A/S/M)
CN607
(Page3-32)
J
K

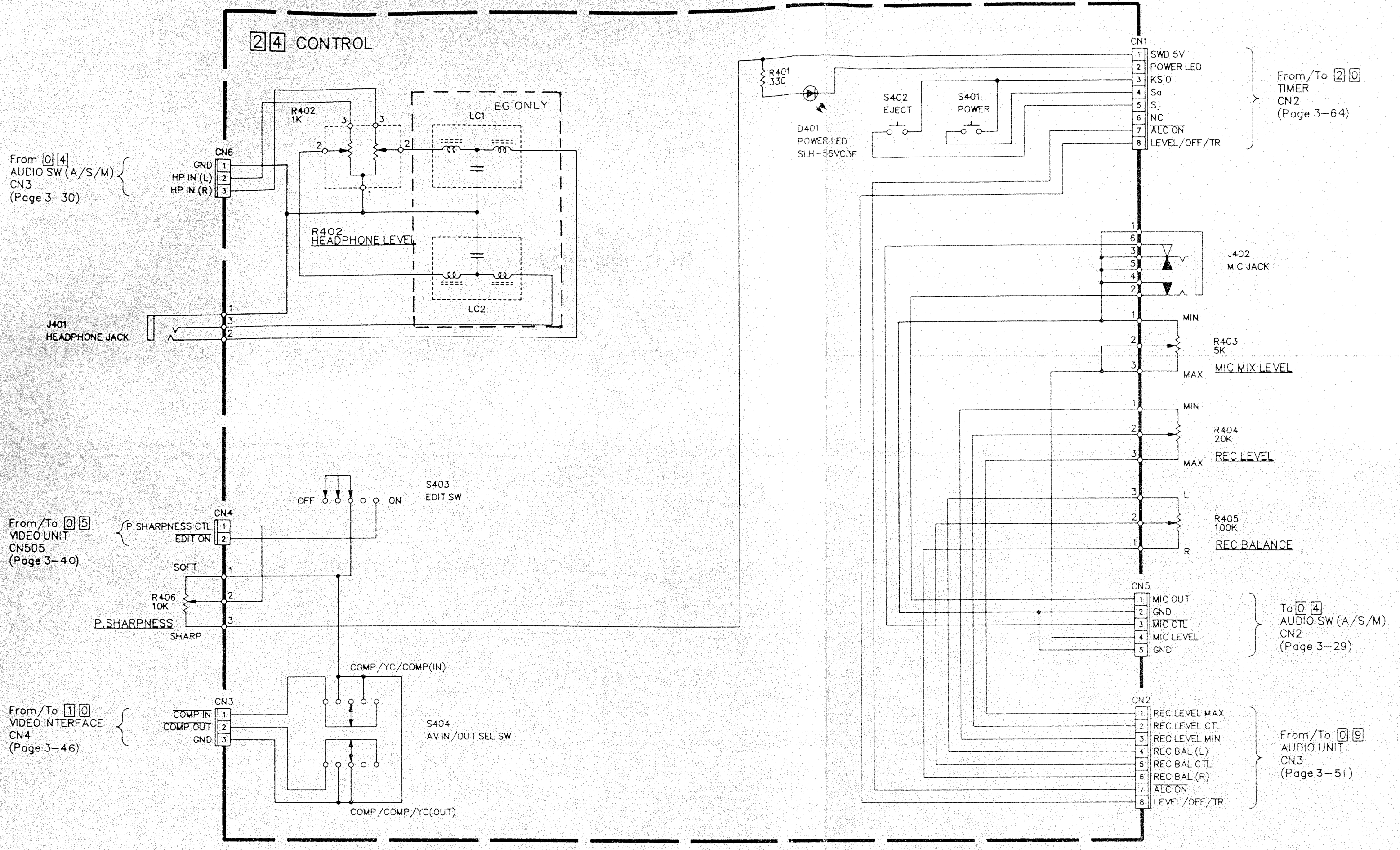
3.37 REC AMP CIRCUIT BOARD


R36
LP FREQ (S VHS)
R35
SP FREQ (S VHS)
R23
REC FM ADJ
R91
SP REC COLOUR
R216
FMA REC LEVEL
R65
SP FREQ (VHS)
R66
LP FREQ (VHS)
R90
LP REC COLOUR
PB10404-02-04
REC PWB
PB10404 C-01
REC PWB ASS'Y
CMK-77X
1
2
3
4

Note: Double edging indicates not used in this model.

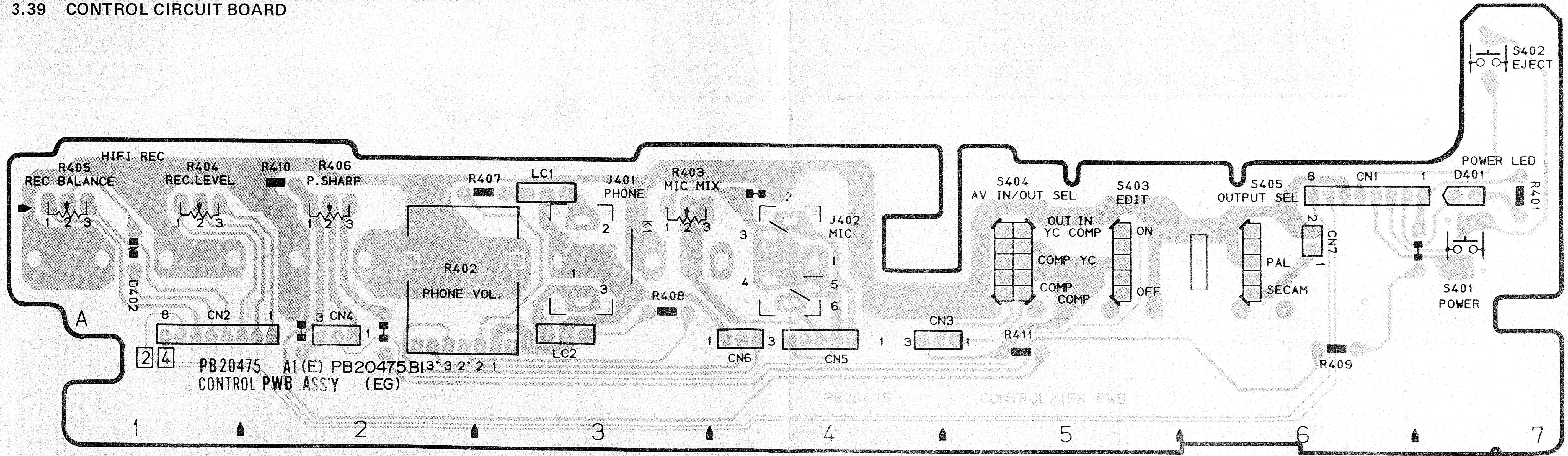
Examples; Resistor, Capacitor, Transistor, DIODE

3.38 CONTROL SCHEMATIC DIAGRAM



24 CONTROL
From 04
AUDIO SW (A/S/M)
CN3
(Page 3–30)
CN6
GND
HP IN (L)
HP IN (R)
R402
1K
EG ONLY
LC1
LC2
R402
HEADPHONE LEVEL
J401
HEADPHONE JACK
S403
EDIT SW
OFF
ON
From/To 05
VIDEO UNIT
CN505
(Page 3–40)
CN4
P.SHARPNESS CTL
EDIT ON
SOFT
R406
10K
P.SHARPNESS
SHARP
COMP/YC/COMP(IN)
From/To 10
VIDEO INTERFACE
CN4
(Page 3–46)
CN3
COMP IN
COMP OUT
GND
S404
AV IN/OUT SEL SW
COMP/COMP/YC(OUT)
R401
330
D401
POWER LED
SLH–56VC3F
S402
EJECT
S401
POWER
CN1
SWD 5V
POWER LED
KS 0
Sa
Sj
NC
ALC ON
LEVEL/OFF/TR
From/To 20
TIMER
CN2
(Page 3–64)
J402
MIC JACK
MIN
MAX
R403
5K
MIC MIX LEVEL
R404
20K
REC LEVEL
L
R
R405
100K
REC BALANCE
CN5
MIC OUT
GND
MIC CTL
MIC LEVEL
GND
To 04
AUDIO SW (A/S/M)
CN2
(Page 3–29)
CN2
REC LEVEL MAX
REC LEVEL CTL
REC LEVEL MIN
REC BAL (L)
REC BAL CTL
REC BAL (R)
ALC ON
LEVEL/OFF/TR
From/To 09
AUDIO UNIT
CN3
(Page 3–51)

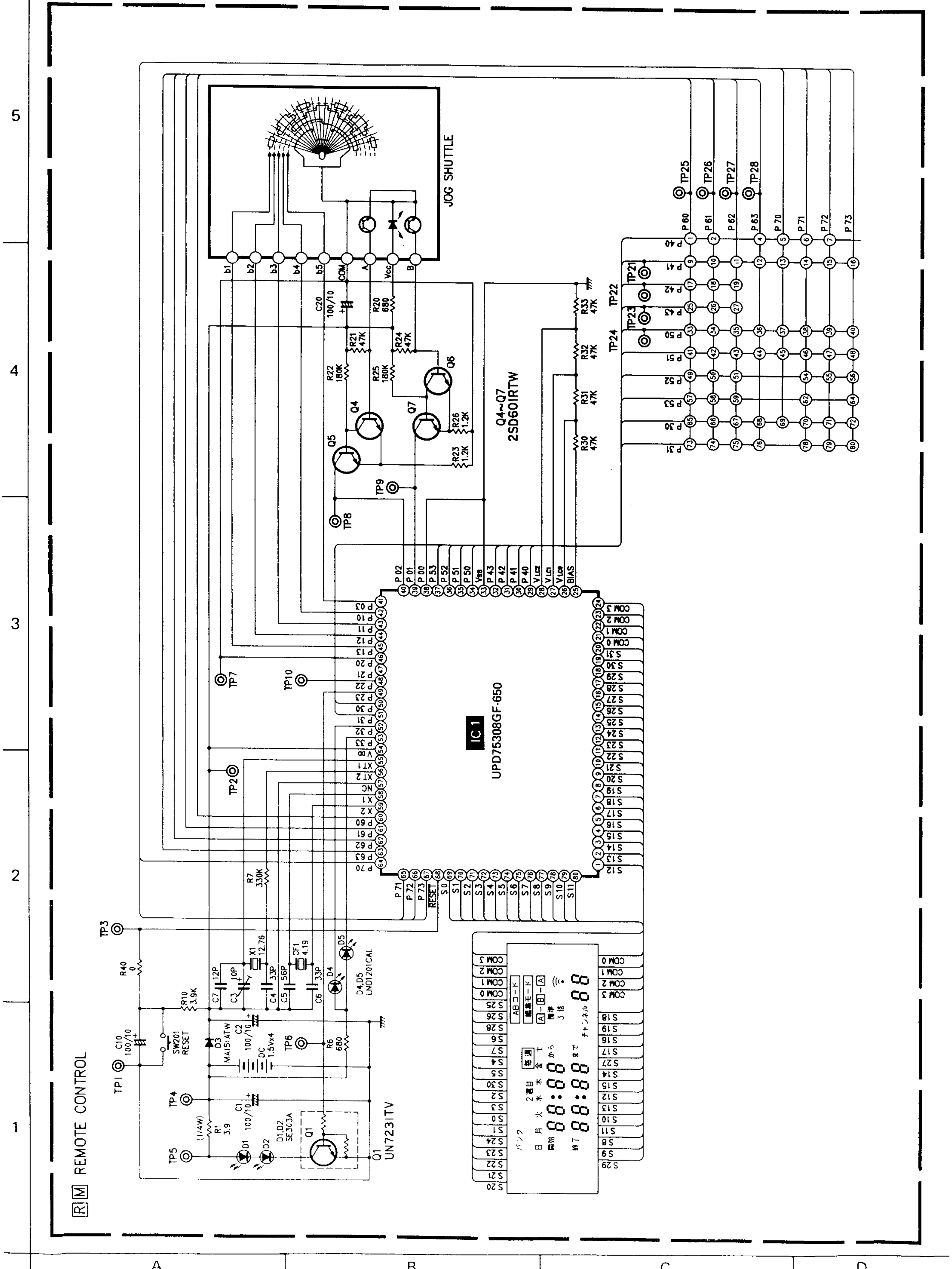
3.39 CONTROL CIRCUIT BOARD



HIFI REC
R405
REC BALANCE
R404
REC.LEVEL
R410
R406
P.SHARP
R407
LC1
J401
PHONE
R403
MIC MIX
J402
MIC
S404
AV IN/OUT SEL
OUT IN
YC COMP
COMP YC
COMP
COMP
S403
EDIT
ON
OFF
S405
OUTPUT SEL
PAL
SECAM
CN7
CN1
POWER LED
D401
R401
S402
EJECT
S401
POWER
D402
A
CN2
CN4
R402
PHONE VOL.
R408
LC2
CN6
CN5
CN3
R411
R409
24
PB20475 A1(E) PB20475 B1 3' 3 2' 2 1
CONTROL PWB ASS'Y (EG)
PB20475 CONTROL/IFR PWB
1
2
3
4
5
6
7

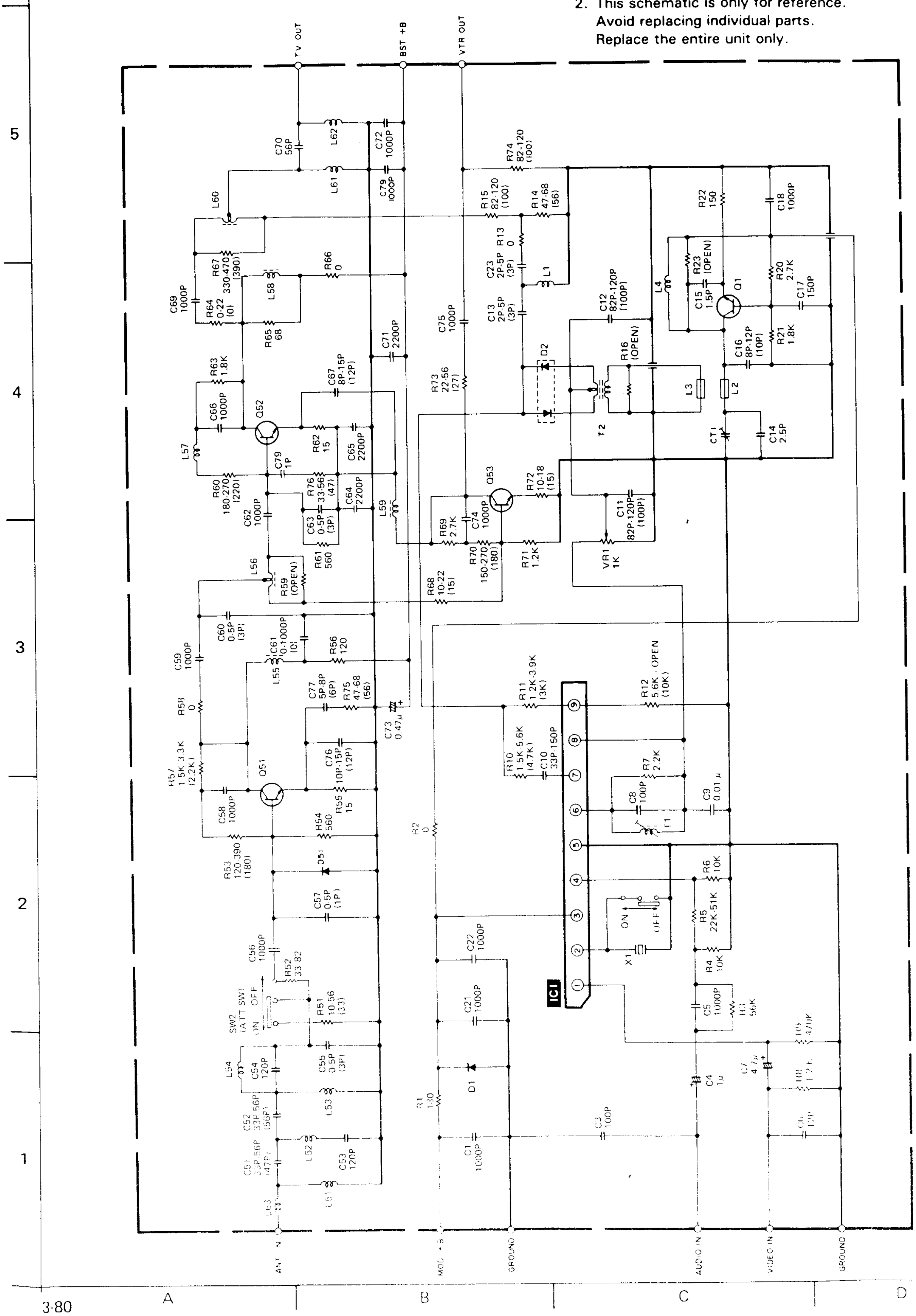
3.40 REMOTE CONTROL SCHEMATIC DIAGRAM

NOTES: 1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entrie unit only.


RM REMOTE CONTROL
JOG SHUTTLE
b1 b2 b3 b4 b5 COM A Vcc B
C20 100/10
R20 680
R21 47K
R22 180K
R24 47K
R25 180K
R26 1.2K
R23 1.2K
Q4 Q5 Q6 Q7
Q4~Q7 2SD601RTW
R30 47K R31 47K R32 47K R33 47K
TP1 TP2 TP3 TP4 TP5 TP6 TP7 TP8 TP9 TP10
TP21 TP22 TP23 TP24 TP25 TP26 TP27 TP28
P 60 P 61 P 62 P 63 P 70 P 71 P 72 P 73
P 40 P 41 P 42 P 43 P 50 P 51 P 52 P 53 P 30 P 31
IC1
UPD75308GF-650
P 02 P 01 P 00 P 53 P 52 P 51 P 50 Vss P 43 P 42 P 41 P 40 VLC2 VLC1 VLC0 BIAS
P 03 P 10 P 11 P 12 P 13 P 20 P 21 P 22 P 23 P 30 P 31 P 32 P 33 V ob XT1 XT2 NC X1 X2 P 60 P 61 P 62 P 63 P 70
P 71 P 72 P 73 RESET S 0 S 1 S 2 S 3 S 4 S 5 S 6 S 7 S 8 S 9 S 10 S 11
COM 3 COM 2 COM 1 COM 0 S 31 S 30 S 29 S 28 S 27 S 26 S 25 S 24 S 23 S 22 S 21 S 20 S 19 S 18 S 17 S 16 S 15 S 14 S 13 S 12
R7 330K
X1 12.76
CF1 4.19
C7 12P C3 10P C4 33P C5 56P C6 33P
D5 D4
D4,D5 LN0120ICAL
R40 0
R10 3.9K
C10 100/10
SW201 RESET
D3 MA151ATW
C2 100/10
DC 1.5Vx4
R6 680
C1 100/10
R1 3.9 (1/4W)
D1 D2
D1,D2 SE303A
Q1
Q1 UN7231TV
AB コード
編集モード
A-B-A
毎週
2週目
日 月 火 水 木 金 土
から
まで
開始
終了
録画
3倍
標準
チャンネル
6 5 4 3 2 1
A B C D

3.41 RF CONVERTER AND MIX BOOSTER SCHEMATIC DIAGRAM

NOTES:
1. All parts shown in this schematic are critical for safe
2. This schematic is only for reference. Avoid replacing individual parts. Replace the entire unit only.



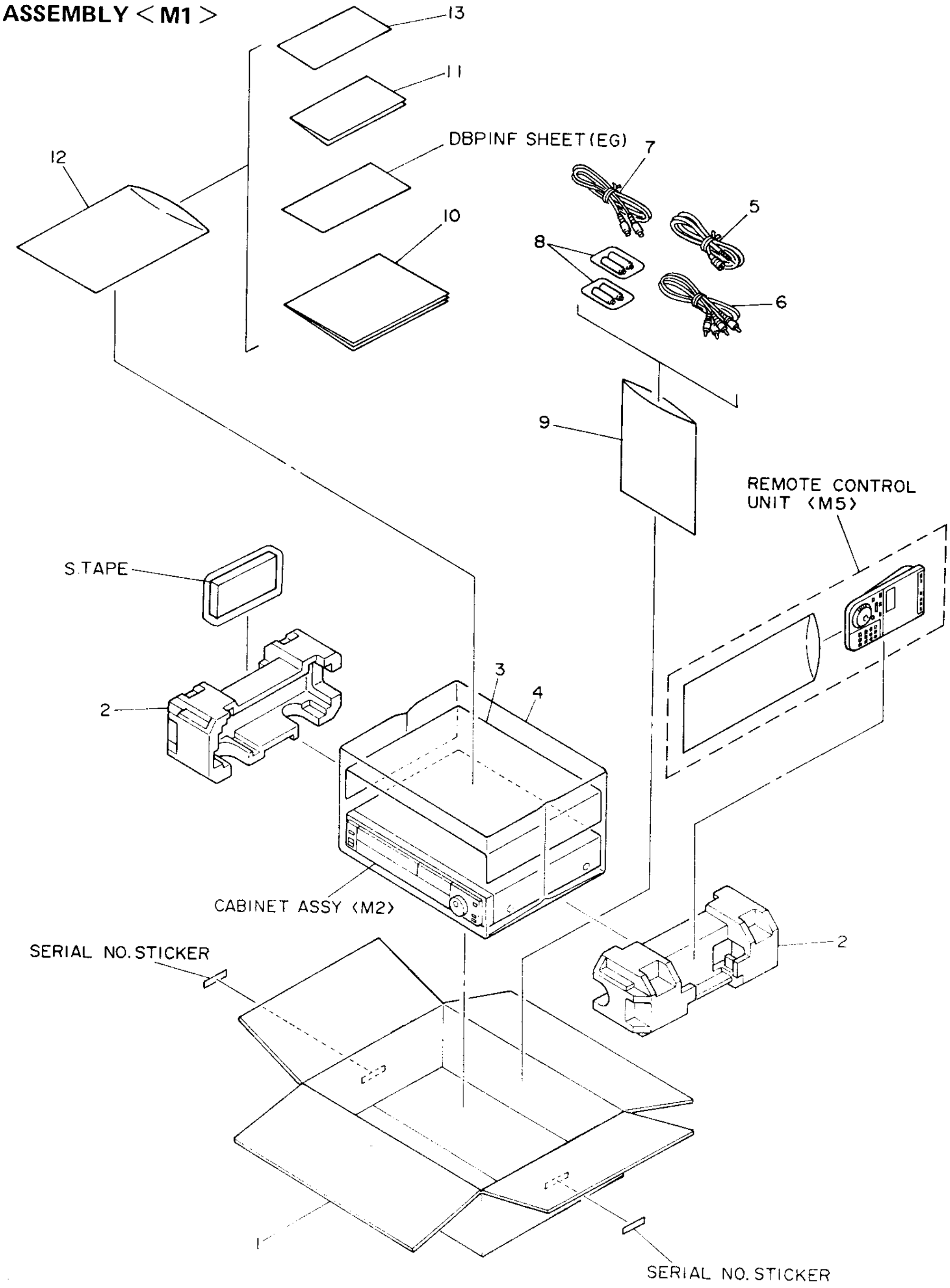
TV OUT
BST +B
VTR OUT
ANT IN
MOD +B
GROUND
AUDIO IN
VIDEO IN
GROUND
C70 56P
L62
C72 1000P
L61
C79 1000P
L60
R74 82-120 (100)
R15 82-120 (100)
R14 47-68 (56)
R13 0
R22 150
C18 1000P
R67 330-470 (390)
C69 1000P
R64 0-22 (0)
L58
R66 0
R65 68
C23 2P-5P (3P)
L1
C13 2P-5P (3P)
C12 82P-120P (100P)
R23 (OPEN)
L4
C15 1.5P
Q1
R20 2.7K
C17 150P
C75 1000P
C71 2200P
D2
R16 (OPEN)
C16 8P-12P (10P)
R21 1.8K
R63 1.8K
C67 8P-15P (12P)
R73 22-56 (27)
L3
L2
C66 1000P
Q52
T2
CT1
C14 2.5P
L57
C79 1P
R62 15
C65 2200P
R60 180-270 (220)
R76 33-56 (47)
C64 2200P
Q53
R72 10-18 (15)
C62 1000P
C63 0.5P (3P)
L59
R69 2.7K
C74 1000P
C11 82P-120P (100P)
R61 560
R70 150-270 (180)
R71 1.2K
VR1 1K
L56
R59 (OPEN)
R68 10-22 (15)
C60 0.5P (3P)
C61 0-1000P (0)
R56 120
C59 1000P
L55
C77 5P-8P (6P)
R75 47-68 (56)
R11 1.2K-3.9K (3K)
R12 5.6K - OPEN (10K)
R58 0
C73 0.47μ
R10 1.5K-5.6K (4.7K)
C10 33P-150P
R7 2.2K
R57 1.5K-3.3K (2.2K)
Q51
C76 10P-15P (12P)
C8 100P
C9 0.01μ
C58 1000P
R55 15
R54 560
R2 0
T1
R53 120-390 (180)
D51
R6 10K
C57 0.5P (1P)
ON
OFF
R5 22K-51K
C22 1000P
C56 1000P
R52 33-82
X1
R4 10K
IC1
SW2 (ATT SW)
ON
OFF
R51 10-56 (33)
C21 1000P
C5 1000P
R3 56K
R9 470K
L54
C54 120P
C55 0.5P (3P)
D1
C4 1μ
C7 4.7μ
R8 1.2K
L53
R1 130
C3 100P
C6 12P
C52 33P-56P (56P)
L52
C53 120P
C51 33P-56P (47P)
C1 1000P
L51
L63
1
2
3
4
5
6
7
8
9
A
B
C
D
1
2
3
4
5
6

SECTION 4
EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

4.1 PACKING ASSEMBLY <M1>

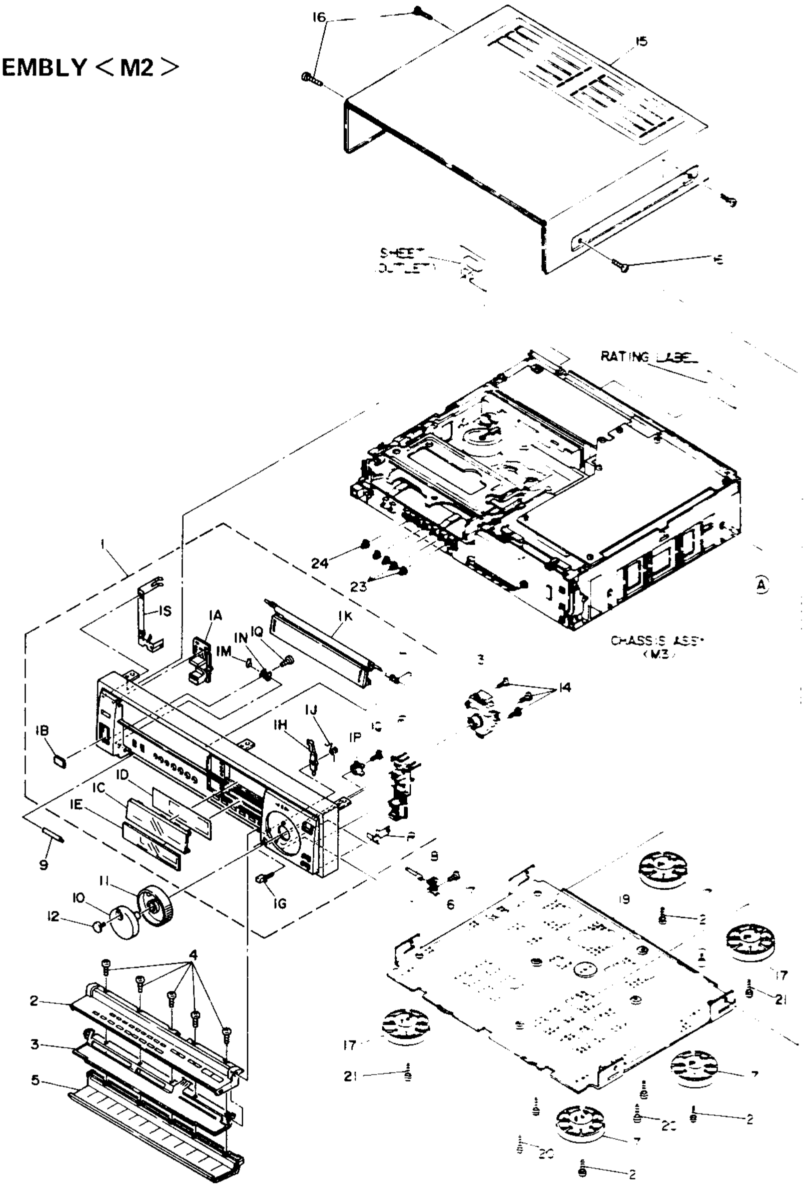

13
11
DBPINF SHEET(EG)
7
12
10
5
8
6
9
REMOTE CONTROL UNIT <M5>
S.TAPE
3
4
2
CABINET ASSY <M2>
SERIAL NO.STICKER
2
1
SERIAL NO. STICKER

****

PACKING ASSEMBLY <M1>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
1	PQ33548-3-1	PACKING CASE, E
1	PQ33548-4-1	PACKING CASE, EG
2	PQ33510A-1	CUSHION ASSY
3	PQ41026-21	PROTECT SHEET
4	PQM30021-70	POLY BAG
5	PU59168-3	RF CABLE
	or PU59167-3	RF CABLE
6	PU56142-3	PIN CORD ASSY
	or PU56142-5	PIN CORD ASSY
7	PU60111	DIN CORD
	or PU61113	MINI DIN CABLE
8	UM-3DJ2P	BATTERY, X4
9	QPGA020-02005	POLY BAG
⚠ 10	PU30425-1178	INSTRUCTIONS, E
⚠ 10	PU30425-1186	INSTRUCTIONS, EG
11	TCN-3379	TAPE CATALOG
12	QPGA025-03505	POLY BAG
13	BT-20114	WARRANTY CARD, EG

4.2 CABINET ASSEMBLY < M2 >

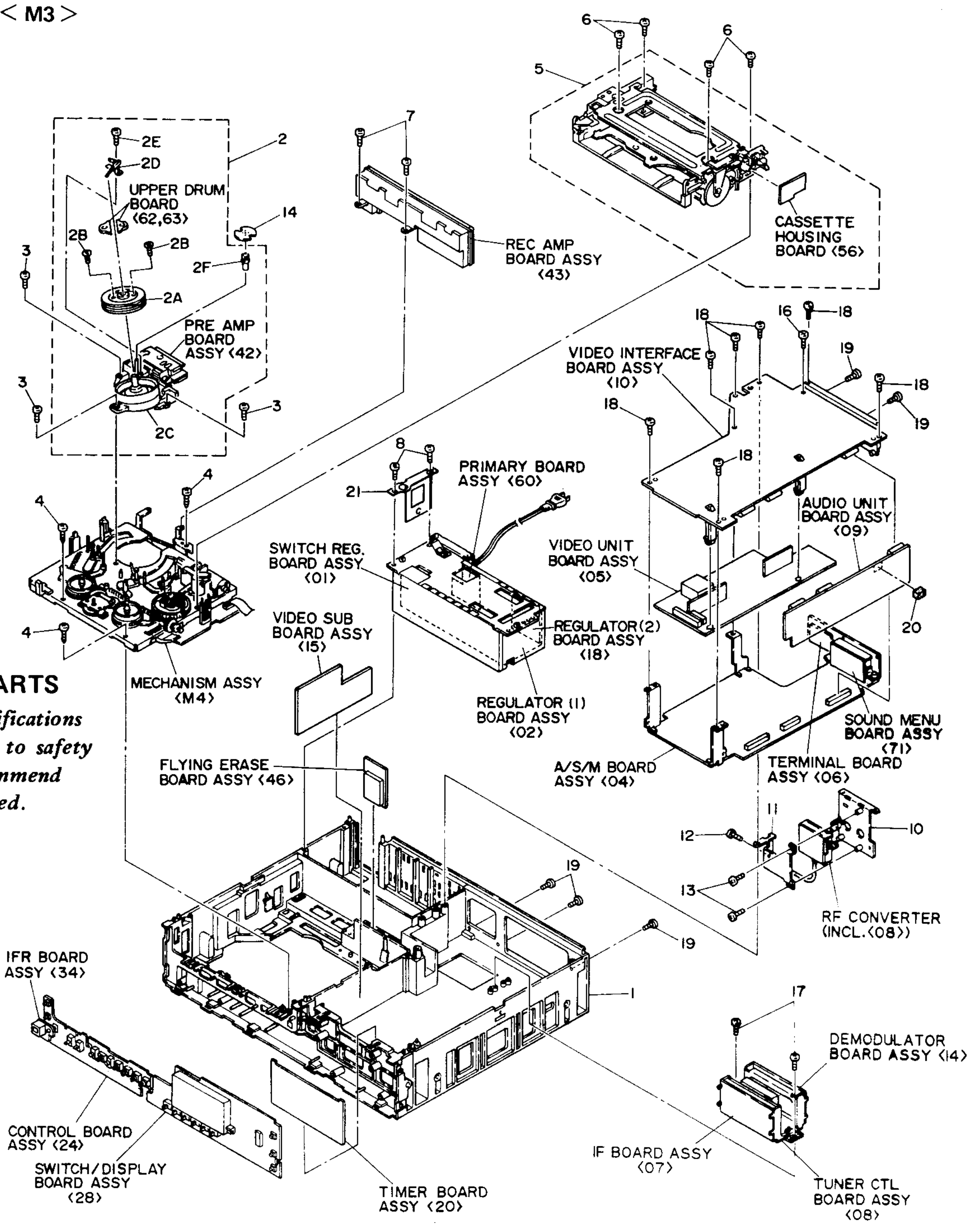


****

CABINET ASSEMBLY <M2>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	PQ11004C-4	FRONT PANEL ASSY, E
	1	PQ11004D-4	FRONT PANEL ASSY, EG
	1A	PQ33370-3	BUTTON(POWER), EG
	1A	PQ33370-4	BUTTON(POWER), E
	1B	PQ44682-1-1	WINDOW(IFR)
	1C	PQ33373-1-1	DISPLAY WINDOW
	1D	PQ33374-3	SHEET(WINDOW), EG
	1D	PQ33374-2-2	SHEET(WINDOW), E
	1E	PQ33399-4	WINDOW(2), EG
	1E	PQ33399-3-2	WINDOW(2), E
	1F	PQ33377-1-1	BUTTON(OPE.)
	1G	PQ44683-1-1	BUTTON(OPEN)
	1H	PQ44684	LEVER
	1J	PQ44836	TORSION SPRING
	1K	PQ21022-1-1	CASSETTE HOUSING DOOR
	1L	PQ44685-1-2	TORSION SPRING
	1M	PQ44681	SPRING
	1N	PQ33379	BRACKET(L)
	1P	PQ33371	BRACKET(R)
	1Q	SDSF2608Z	SCREW, X2 FOR BRACKET
	1R	PQ33646	EARTH PLATE(3)
	1S	PQ33378-1-1	EARTH PLATE
	2	PQ21000D	DOOR (A) ASSY, EG
	2	PQ21000C-6	DOOR (A) ASSY, E
	3	PEME0812-02	MEMBRANE ASSY
	4	SPSN2006M	SCREW, X5 FOR DOOR ASSY
	5	PQ21136D	DOOR (B) ASSY, EG
	5	PQ21136C	DOOR (B) ASSY, E
	6	PEME0603	DAMPER UNIT
	7	SDSF2608Z	SCREW, FOR DAMPER UNIT
	8	PQ44687-1-1	SHAFT(R)
	9	PQ44688-1-1	SHAFT(L)
	10	PQ33375-1-1	KNOB(JOG)
	11	PQ33376	KNOB(SHUTTLE)
	12	PQ33397	CAP
	13	PEME0757-02	JOG SHUTTLE ASSY
	14	SDSF3008Z	SCREW, X3 FOR JOG/SHUTTLE AS
⚠	15	PQ11011-2-2	TOP COVER
	16	PQ43827	SPECIAL SCREW,X4 FOR TOP COVER
	17	PQ43749D	FOOT ASSY, X5
⚠	19	PQ11025-1-4	BOTTOM COVER
	20	SDSG3008Z	SCREW, X4 FOR BOTTOM COVE
	21	SDSG3010Z	SCREW, X5 FOR FOOT ASSY
	23	PQ44650	KNOB(VOLUME), X4
	24	PQ44649	KNOB(VOLUME)

4.3 CHASSIS ASSEMBLY < M3 >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2E
2D
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UPPER DRUM BOARD <62,63>
14
2B
2B
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2F
2A
PRE AMP BOARD ASSY <42>
3
3
2C
7
REC AMP BOARD ASSY <43>
CASSETTE HOUSING BOARD <56>
18
16
18
VIDEO INTERFACE BOARD ASSY <10>
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21
PRIMARY BOARD ASSY <60>
AUDIO UNIT BOARD ASSY <09>
SWITCH REG. BOARD ASSY <01>
VIDEO UNIT BOARD ASSY <05>
4
VIDEO SUB BOARD ASSY <15>
REGULATOR(2) BOARD ASSY <18>
20
MECHANISM ASSY <M4>
REGULATOR (1) BOARD ASSY <02>
SOUND MENU BOARD ASSY <71>
FLYING ERASE BOARD ASSY <46>
A/S/M BOARD ASSY <04>
TERMINAL BOARD ASSY <06>
11
12
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19
RF CONVERTER (INCL.<08>)
19
IFR BOARD ASSY <34>
1
17
DEMODULATOR BOARD ASSY <14>
CONTROL BOARD ASSY <24>
SWITCH/DISPLAY BOARD ASSY <28>
IF BOARD ASSY <07>
TIMER BOARD ASSY <20>
TUNER CTL BOARD ASSY <08>

BEWARE OF BOGUS PARTS

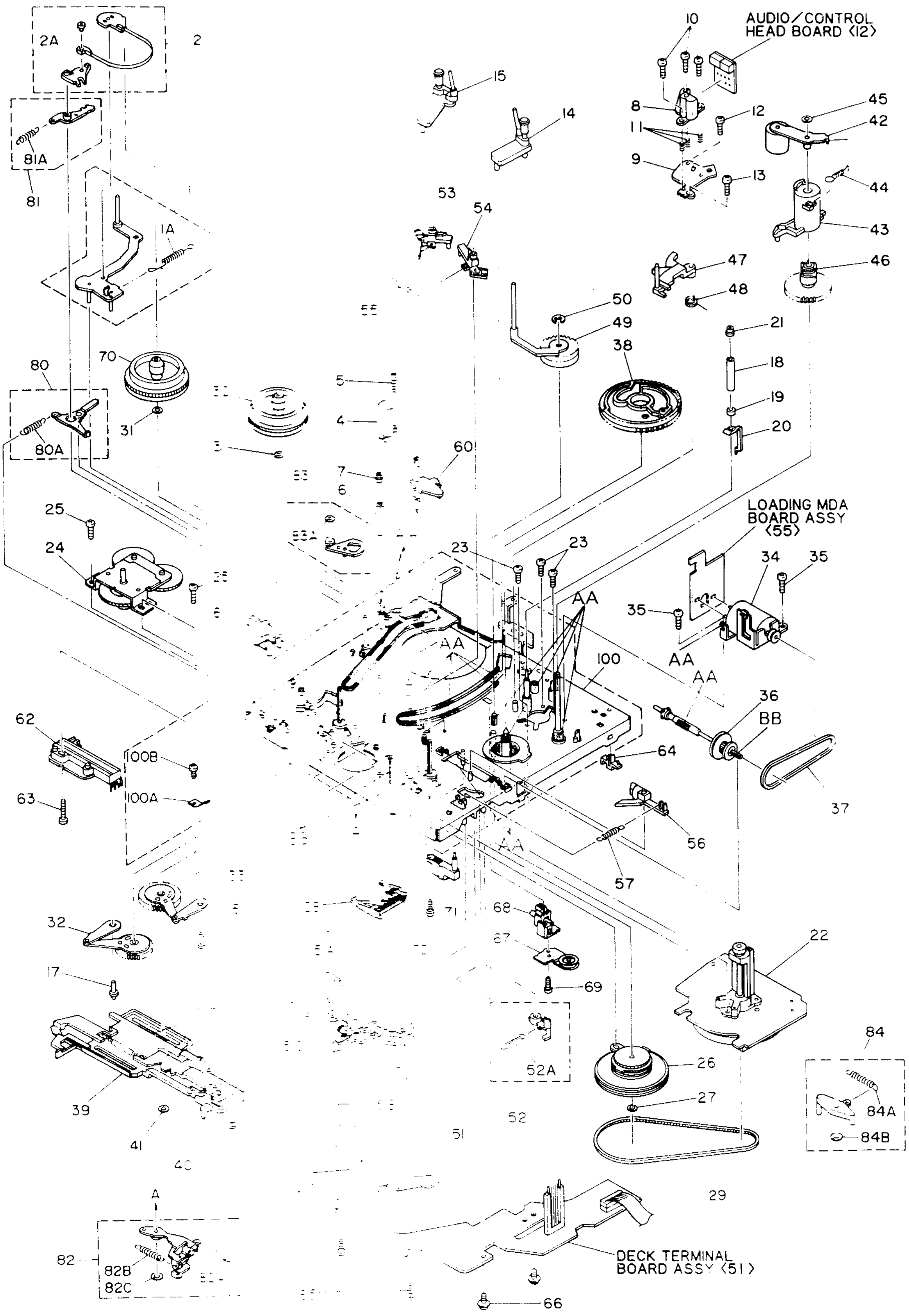
Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.

****

CHASSIS ASSEMBLY <M3>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
⚠ 1	PQ10995-1-5	BOTTOM CHASSIS
2	PDV2215A	DRUM ASSY
2A	PDM2119C	UPPER DRUM ASSEMBLY
2B	PDM4165A	DRUM SCREW ASSY,X2
2C	PDM2138Q	LOWER DRUM MOTOR ASSY
2D	PDM4229A-1	BRUSH ASSY
2E	SPSG2606Z	SCREW
2F	PDM4226A	ROLLER ASSY
⚠ 3	SDST2610Z	SCREW, X3 FOR DRUM ASSY
4	PQ43831	SPECIAL SCREW,X3,FOR MAIN DECK
5	PUS29183D-2	CASSETTE HOUSING ASSY
6	SDST2608Z	SCREW, X4 FOR CASS. HOUSING
7	SDST2606Z	SCREW, X2 FOR REC BOARD
8	SDSF3010Z	SCREW, X2 FOR SW REG BOARD
⚠ 10	PQ21038-4	TERMINAL BOARD, EG
⚠ 10	PQ21038-3	TERMINAL BOARD, E
11	PQ33380	BRACKET
12	SDST2606Z	SCREW, FOR RF CONV
13	SDSF2608Z	SCREW, X2 FOR RF CONV
14	PQ44230	INERTIA PLATE
16	SDSF3010Z	SCREW, FOR TERMINAL BOARD
17	SDSF3010Z	SCREW, X2 FOR TUNER UNIT
18	SDSF3010Z	SCREW, X7 FOR VIDEO I BOARD
19	SDSF3010M	SCREW, X5 FOR REAR PANEL
20	PQM30029-153	SPACER
21	PQ44940	PLATE(EARTH)

4.4 MECHANISM ASSEMBLY < M4 >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81A
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1A
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80A
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100B
100A
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82B
82C
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AUDIO/CONTROL
HEAD BOARD <12>
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LOADING MDA
BOARD ASSY
<55>
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AA
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AA
AA
100
AA
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BB
64
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AA
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52A
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84A
84B
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DECK TERMINAL
BOARD ASSY <51>
66

Category	Part number	MARK
Grease	KANTO-G-3[illegible]	
Oil	COSMO-HV5[illegible]	

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

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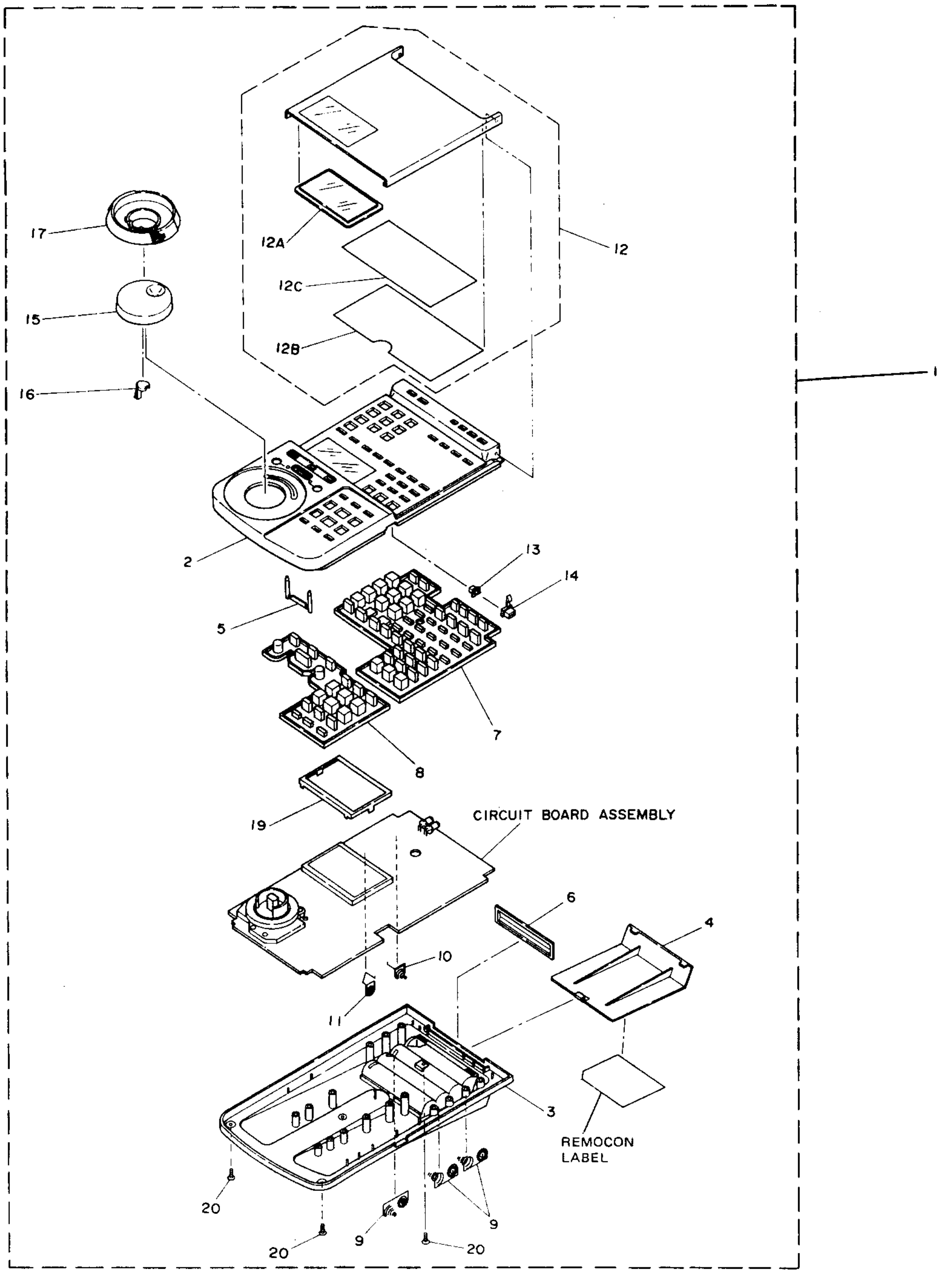
MECHANISM ASSEMBLY <M4>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
1	PQ43497E-8	TENSION ARM ASSY
1A	PQ43500	TENSION SPRING
2	PQ44734A-3	TENSION BAND ASSY
2A	PQ44737	ADJUST PIN
4	PU60616	FULL ERASE HEAD
5	SDSF2614Z	SCREW
6	PQ43505-1-1	ROLLER
7	PQ43506	G.P.CAP
8	PU61002	AUDIO/CONTROL HEAD
9	PQ43509	HEAD BASE
10	PQ43687A	SPECIAL SCREW,X3
11	PQM30002-192	COMPRESSION SP,X3
12	SPSF2608M	SCREW
13	SPSP2606Z	SCREW
14	PU61103-2	P.BASE(T) ASSY
15	PU61151-2	P.BASE(S) ASSY
16	PQ43524	STOPPER
17	PQ43525	STOPPER 2
18	PQ43526-1-3	TAPE GUIDE
19	PQ43670-1-1	GUIDE FLANGE
20	PQ43675	TAPE GUARD
21	PQ43506	G.P.CAP
⚠ 22	PU61003-1-2	CAPSTAN MOTOR
23	SPSG2608Z	SCREW,X3
24	PU61246	IDLER GEAR UNIT
25	SPST2606Z	SCREW,X2
26	PU61245-1-1	CLUTCH UNIT
27	PQM30017-8	SLIT WASHER
28	PQ43532B	C.LEVER ASSY
29	PU61006	TIMING BELT
30	PU60858-1-4	REEL DISK (TAKE-UP)
31	PQM30018-54	SPACER,X2
32	PQ43537A	LOADING ARM ASSY (SUPLLY)
33	PQ43542B	LOADING ARM ASSY (TAKE-UP)
34	PQ43676B-5	MODE MOTOR ASSY
	or PQ43676C	MODE MOTOR ASSY
35	SPST2606Z	SCREW,X2
36	PQ43548A-3	WORM CLUTCH ASSY
37	PQM30003-23	BELT
38	PQ20822-2-4	CONTROL CAM
39	PQ44581A-4	PLATE ASSY
40	PQM30017-12	SLIT WASHER
41	PQM30017-8	SLIT WASHER
42	PQ43558A	PINCH ROLLER ARM ASSY
	or PQ43558B	PINCH ROLLER ARM ASSY
43	PQ32415	P.R.PRESS LEVER
44	PQM30001-233	TENSION SPRING
45	PQM30017-12	SLIT WASHER
46	PQ32416-2	P.R.CAM
47	PQ43567A-8	GUIDE ARM ASSY
48	PQ43569-1-3	TORSION SPRING
49	PQ43570A	H.L.GEAR ASSY
50	PQM30017-12	SLIT WASHER
51	PQ43575A-5	C.LEVER ASSY
51A	PQM30001-273	TENSION SPRING
51B	PQM30001-237	T.SPRING
51C	PQM30001-274	TENSION SPRING
52	PQ43578A-2	HOOK ASSY
52A	PQM30001-238	T.SPRING
53	PQ43581A-6	M.BRAKE(S) ASSY
54	PQ43582A-2	M.BRAKE(T) ASSY
55	PQM30001-251	TENSION SPRING
56	PQ43583A	SUB BRAKE ASSY (TAKE-UP)
57	PQM30001-298	TENSION SPRING
60	PU60621-1-2	LED HOLDER
61	PU60624-1-4	REC SAFETY SWITCH (S2)
62	PU61247	SLIDE ENCORDER (S3)
63	SDSF2614Z	SCREW
64	PQ32516	PWB HOLDER
65	SDST2616Z	SCREW,X2
66	GPSF2608Z	SCREW,X2
67	PQ43912A-5	PULLEY ARM ASSY
68	PQ33249	PULLEY BASE
69	SDSF2608Z	SCREW
70	PU60859-1-4	REEL DISK (SUPPLY)
71	PU61008	CASSETTE SW (S1)
72	SDST2608Z	SCREW
80	PQ44739A-1	L.LEVER 1 ASSY
80A	PQM30001-278-46	TENSION SPRING
81	PQ44741A-2	L.LEVER 2 ASSY
81A	PQM30001-279-46	TENSION SPRING
82	PQ44743A-3	IDLER LEVER ASSEMBLY
82A	PQM30001-302	TENSION SPRING
82B	PQM30001-301	TENSION SPRING
82C	PQM30017-5	SLIT WASHER
83	PQ44746A	OFF LEVER ASSY
83A	PQM30017-5	SLIT WASHER
84	PQ44585A-3	CAPSTAN BRAKE ASSEMBLY
84A	PQM30001-282-46	SPRING
84B	PQM30017-8	SLIT WASHER
100	PQ20994A-4	MAIN DECK ASSEMBLY
100A	PQ43849	EARTH PLATE
100B	SPST2604Z	SCREW

4.5 REMOTE CONTROL UNIT <M5>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CIRCUIT BOARD ASSEMBLY
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REMOCON LABEL
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REMOTE CONTROL UNIT <M5>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	1	PQ10842Q	REMOTE CONTROLLER, E
⚠	1	PQ10842S	REMOTE CONTROLLER, EG
	2	PQ10843-8-3	UPPER CASE, EG
	2	PQ10843-9	UPPER CASE, E
	3	PQ10844-2	LOWER CASE
	4	PQ32866-2	BATTERY CAP
	5	PQ43954	INDICATOR
	6	PQ32870	IR WINDOW
	7	PQ20824-14	BUTTON(1), E
	7	PQ20824-16	BUTTON(1), EG
	8	PQ20829-7	BUTTON(2), EG
	8	PQ20829-3	BUTTON(2), E
	9	PQ43933	TERMINAL(A), X3
	10	PQ43934	TERMINAL(B)
	11	PQ43935	TERMINAL(C)
	12	PQ32871H	DOOR ASSY, E
	12	PQ32871G-3	DOOR ASSY, EG
	12A	PQ43936-2	LCD WINDOW
	12B	PQ32874-6	SHEET(CLEAR)
	12C	PQ32875-8	SHEET(PROGRAM), EG
	12C	PQ32875-7	SHEET(PROGRAM), E
	13	PQ43966	BUTTON(3)
	14	PQ43967	BUTTON(OPEN)
	15	PQ43968B	JOG ASSY
	16	PQ43969	SPACER(JOG)
	17	PQ32907-2	SHUTTLE
	19	PQ43845	HOLDER(LCD)
	20	SSSF2008M	SCREW, X3

SECTION 5
ELECTRICAL PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION

****

SWITCHING REGULATOR BOARD ASSY <01><02><18>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	PB10459A-01	SW REG BOARD ASSY, E
PWBA	PB10459B-01	SW REG BOARD ASSY, EG
⚠ COV1	PQ33643	COVER(AC) (1)
⚠ COV2	PQ33644-1-2	COVER(AC) (2)
ERT1	PQ44695	EARTH PLATE
⚠ POC1	QMP3980-200	POWER CORD
BKT1	PQ21026-2-2	BRACKET (1)
BKT2	PQ21027	BRACKET (2)
⚠ BKT3	PQ33381-2	BRACKET(POWER)
BKT4	PQ44906	BRACKET(3)
⚠ HD1	QHS3771-108	STRAIN RELIEF
SCW1	SDST3006Z	SCREW, X9
SCW2	SDST3008Z	SCREW, X2
SCW3	SDSP3008Z	SCREW
⚠ SKT1	QMC9021-001	AC OUTLET
SLD1	PQ33382	SHIELD COVER(1)
SLD2	PQ33383	SHIELD COVER(2)

– SWITCHING REGULATOR BOARD ASSEMBLY<01> –

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA1	PB10459A1-01	SW.REG BOARD ASSY, E	
PWBA1	PB10459B1-01	SW REG BOARD ASSY, EG	
IC1	LM358P	IC	
	or LM358N	IC	
	or BA10358	IC	
Q1	2SC4304-LF619	TRANSISTOR	
Q2	2SC3616(MLK)	TRANSISTOR	
	or 2SD2144S(UVW)	TRANSISTOR	
Q4	2SB941P	TRANSISTOR	
	or 2SA1488	TRANSISTOR	
Q5	2SA1515(QR)	TRANSISTOR	
D1	RB-156LFB	DIODE	
D2	AU01	FR DIODE	
	or 1SR153-400-T2	FR DIODE	
D3	AU01	FR DIODE	
	or 1SR153-400-T2	FR DIODE	
D4	AU01Z	FR DIODE	
	or 1SR153-200-T2	FR DIODE	
D5	MTZ27BT-77	ZENER DIODE	
D7	AK04	DIODE	
D8	AU01Z	FR DIODE	
	or 1SR153-200-T2	FR DIODE	
D10	MTZ33AT-77	ZENER DIODE	
D11	AU01Z	FR DIODE	
	or 1SR153-200-T2	FR DIODE	
D12	11EFS2	FR DIODE	
D14	FML-12S	FR DIODE	
	or F6P20F	FR DIODE	
D15	AU01Z	FR DIODE	
	or 1SR153-200-T2	FR DIODE	
D16	FMB-24	BARRIER DIODE	
	or F5KQ40B	BARRIER DIODE	
D18	MTZV6.2A	ZENER DIODE	
D19	RD33ES-T1B4	ZENER DIODE	
R2	QRZ0078-2R2	W.W.RESISTOR	2.2Ω
R3	QRD161J-184	RESISTOR	180KΩ,1/6W
R4	QRD161J-184	RESISTOR	180KΩ,1/6W
R5	QRD161J-563	RESISTOR	56KΩ,1/6W
R6	QRG029J-683G	OMF RESISTOR	68KΩ,2W
R7	QRG029J-561A	OMF RESISTOR	560Ω,2W
R8	QRG029J-331G	RESISTOR	330Ω,2W
R9	QRX014J-R33Z	MF RESISTOR	0.33Ω,1W
R10	QRD161J-122	RESISTOR	1.2KΩ,1/6W
R11	QRD161J-471	RESISTOR	470Ω,1/6W
⚠ R12	QRZ0077-470X	FUSIBLE RESISTOR	47Ω
R14	QRD161J-103	RESISTOR	10KΩ,1/6W
⚠ R15	QRZ0077-220X	FUSIBLE RESISTOR	22Ω
R16	QRV144F-1072AY	CMF RESISTOR	10.7KΩ,1/4W
R17	QRV144F-1002A	CMF RESISTOR	10.0KΩ,1/4W
R18	QRD161J-331	RESISTOR	330Ω,1/6W
R19	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R21	QRV144F-1182A	CMF RESISTOR	11.8KΩ,1/4W
R22	QRV144F-1002A	CMF RESISTOR	10.0KΩ,1/4W
R23	QRV144F-4023A	RESISTOR	402KΩ,1/4W
R24	QRD161J-471	RESISTOR	470Ω,1/6W
R26	QRG029J-303A	OMF RESISTOR	30KΩ,2W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
⚠ R27	QRZ0077-220X	FUSIBLE RESISTOR	22Ω
R28	QRD161J-471	RESISTOR	470Ω,1/6W
⚠ C2	QFZ9022-333	MM CAPACITOR	0.033μF
⚠ C3	QFZ9022-333	MM CAPACITOR	0.033μF
⚠ C4	QCZ9016-222M	CAPACITOR	0.0022μF
⚠ C5	QCZ9016-222M	CAPACITOR	0.0022μF
⚠ C6	QCZ9016-222M	CAPACITOR	0.0022μF
⚠ C7	QCZ9016-222M	CAPACITOR	0.0022μF
C8	PECA0738-107	E CAPACITOR	
C9	QCZ0212-472	CAPACITOR	0.0047μF
	or QCY53AK-472	CAPACITOR	0.0047μF,1000V
C10	QCZ0213-101Z	CAPACITOR	100PF
C11	QFV41HJ-224	TF CAPACITOR	0.22μF,50V
	or QFV11HJ-224	TF CAPACITOR	0.22μF,50V
C12	QFL41HJ-682	M CAPACITOR	0.0068μF,50V
C13	QETC1HM-105	E CAPACITOR	1μF,50V
C14	QEZ0156-127Z	E CAPACITOR	120μF
	or QEZ0135-127Z	E CAPACITOR	120μF
C15	QETC0JM-107	E CAPACITOR	100μF,6.3V
C16	QETC1HM-476	E CAPACITOR	47μF,50V
C17	QETC1VM-336	E CAPACITOR	33μF,35V
C18	QCBB1HJ-271	CAPACITOR	270PF,50V
C19	QEZ0125-277	E CAPACITOR	270μF
	or QEZ0138-277	E CAPACITOR	270μF
C20	QETC1EM-227	E CAPACITOR	220μF,25V
C21	QFN31HJ-103	M CAPACITOR	0.01μF,50V
C22	QEZ0105-228	E CAPACITOR	2200μF
	or QEZ0137-228	E CAPACITOR	2200μF
C23	QETB1CM-228	E CAPACITOR	2200μF,16V
C24	QETC1JM-336	E CAPACITOR	33μF,63V
C25	QEZ0106-228	E CAPACITOR	2200μF
	or QEZ0136-228	E CAPACITOR	2200μF
C26	QETB1AM-228	E CAPACITOR	2200μF,10V
C27	QFN31HJ-102	M CAPACITOR	0.001μF,50V
C28	QFN31HJ-223	M CAPACITOR	0.022μF,50V
⚠ C32	QCZ9016-101K	CAPACITOR	100PF
⚠ C33	QCZ9016-101K	CAPACITOR	100PF
⚠ C34	QCZ9016-222M	CAPACITOR, EG	0.0022μF
⚠ C35	QCZ9016-222M	CAPACITOR, EG	0.0022μF
L1	PU48530-100K	COIL	10μH
L2	PELN0270-330K	COIL	
L3	PELN0270-330K	COIL	
L4	PELN0270-330K	COIL	
⚠ PC1	PC111S	PHOTO COUPLER	
⚠ T1	PELN0301	SW TRANS	
HS1	PEME0809-01-01	HEAT SINK	
⚠ HS2	PU61191	HEAT SINK(1)	
⚠ HS3	PQ44774	HEAT SINK	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
J1	PEMC0742-010	B TO B CONN	
J2	PEMC0742-006	B TO B CONN	
⚠ LF2	PU60347	LINE FILTER	
⚠	or PU61108	LINE FILTER	
SCW1	SDSG3008Z	SCREW	
SCW2	DPSP3008Z	SCREW, X2	
SCW3	SDSG3008Z	SCREW	
CN1	PU59555-106	CAP HOUSING	
CN6	PU58844-103Y	CAP HOUSING	
CN7	PU58844-103	CAP HOUSING	
⚠ CP1	ICP-N10	CIRCUIT PROTECTOR	
⚠ CP3	ICP-N25	CIRCUIT PROTECTOR	

– REGULATOR(1) BOARD ASSEMBLY<02> –

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA2	PB10459B2-01	REG(1) BOARD ASSY, EG	
PWBA2	PB10459A2-01	REG(1) BOARD ASSY, E	
IC2	LM358P	IC	
	or BA10358	IC	
	or LM358N	IC	
Q31	2SD1468S(RS)	TRANSISTOR	
Q32	2SB1068(KU)	TRANSISTOR	
⚠ Q33	DTB114ES	TRANSISTOR	
Q34	2SD2166(QRS)	TRANSISTOR	
Q35	2SB1068(KU)	TRANSISTOR	
D30	1SS133	DIODE	
	or MA165	DIODE	
D34	1SS133	DIODE	
	or MA165	DIODE	
D35	MTZV6.2A	ZENER DIODE	
R31	QRD161J-102	RESISTOR	1KΩ,1/
R34	QRD161J-471	RESISTOR	470Ω,1/
R35	QRD161J-222	RESISTOR	2.2KΩ,1/
R36	QVZ3521-222Z	V RESISTOR, SWD 5V ADJ	2.2
	or QVZ3521-222	V RESISTOR	2.2
R37	QRD161J-123	RESISTOR	12KΩ,1/
R38	QRD161J-102	RESISTOR	1KΩ,1/
R39	QRD161J-112	RESISTOR	1.1KΩ,1/
R40	QRD161J-103	RESISTOR	10KΩ,1/
R41	QRD161J-102	RESISTOR	1KΩ,1/
R42	QRD161J-102	RESISTOR	1KΩ,1/
R44	QRD161J-103	RESISTOR	10KΩ,1/
R46	QRD161J-222	RESISTOR	2.2KΩ,1/

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C41	QETC0JM-107	E CAPACITOR	100μF,6.3V
C42	QETC0JM-107	E CAPACITOR	100μF,6.3V
C43	QETC1CM-107	E CAPACITOR	100μF,16V
C44	QETC1CM-107	E CAPACITOR	100μF,16V
C46	QFN31HJ-103	M CAPACITOR	0.01μF,50V
C47	QETC1CM-107	E CAPACITOR	100μF,16V
C48	QETC1CM-107	E CAPACITOR	100μF,16V
⚠ HS1	PQ44774	HEAT SINK	
J3	PEMC0742-008	B TO B CONN	
SCW1	SDSG3008Z	SCREW	
TP1	PU54983	TEST PIN	
CN2	PU58844-105	CAP HOUSING	
CN3	PU59555-110	CAP HOUSING	
CN5	PU59555-104	CAP HOUSING	
CN11	PU58844-2	CAP HOUSING	
⚠ CP5	ICP-N25	CIRCUIT PROTECTOR	

- REGULATOR(2) BOARD ASSEMBLY<18> -

PWBA3	PB10459B3-01	REG(2) BOARD ASSY, EG	
PWBA3	PB10459A3-01	REG(2) BOARD ASSY, E	
IC3	UPC24M05HF	IC	
C53	QETC1AM-107	E CAPACITOR	100μF,10V
C54	QFN31HJ-103	M CAPACITOR	0.01μF,50V
C57	QETC1JM-336	E CAPACITOR	33μF,63V
TP2	PU54983	TEST PIN, X2(TP2,GND)	
CN4	PU58844-104	CAP HOUSING	
⚠ CP4	ICP-N10	CIRCUIT PROTECTOR	

- PRIMARY BOARD ASSEMBLY<60> -

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	PB20505A	PRIMARY BOARD ASSEMBLY	
D6	1SS133	DIODE	
⚠ C1	QFZ9022-333	MM CAPACITOR	0.033μF
⚠ C30	QCZ9016-222M	CAPACITOR, E	0.0022μF
⚠ C31	QCZ9016-222M	CAPACITOR, E	0.0022μF
⚠ RY1	PESW0555	RELAY	
⚠ CL1	PU57505	FUSE CLIP, X4	
⚠ LF1	PU60020	LINE FILTER, EG	
⚠ LF1	PU59707	LINE FILTER, E	
⚠	or PELN0255	LINE FILTER, E	
⚠ TAB1	A74316	TAB, X2	
CN12	PU58844-2	CAP HOUSING	
⚠ F1	QMF51E2-1R25	FUSE	T1.25A
⚠	or QMF51E2-1R25J1	FUSE	T1.25A
⚠ F2	QMF51E2-2R0	FUSE	T2.0A
⚠	or QMF51E2-2R0J1	FUSE	T2.0A

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A/S/M BOARD ASSEMBLY <04><71>

PWBA	PB10438A-03	A/S/M BOARD ASSY, E	
PWBA	PB10438B-02	A/S/M BOARD ASSY, EG	
IC601	M37419M8-116SP	IC	
BKT1	PQ44693	BRACKET (1), X2	
BKT2	PQ44694-1-2	BRACKET (2)	
CL1	PU59311-4	WIRE CLAMP	
CL2	PEME0802	CLAMP, X3	
JA1	PEMC0760	PIN JACK, A IN	
JA2	PEMC0761	PIN JACK, A OUT	
JP1	PU61012	MINI JACK	
SCW1	SDSF2608Z	SCREW, X2 FOR TERM BOARD	
SCW2	SDSG2610Z	SCREW, X3 FOR BRACKET(1)/(2)	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
⚠ TB1	PQ21025	TERM. BOARD (2), EG	
⚠ TB1	PQ21025-2	TERM. BOARD (2), E	
TP1	PU55774	TEST PIN, X2	

– AUDIO SECTION –

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA1	PB10438A1-03	A/S/M BOARD ASSY, E	
PWBA1	PB10438B1-03	A/S/M BOARD ASSY, EG	
IC1	LA7222	IC	
IC2	XRA15218	IC	
	or BA15218	IC	
IC3	XRA15218	IC	
	or BA15218	IC	
IC5	XRA15218	IC	
	or BA15218	IC	
Q1	DTA114ES	TRANSISTOR	
Q2	DTC114ES	TRANSISTOR	
Q3	DTC114ES	TRANSISTOR	
Q4	DTA114ES	TRANSISTOR	
Q5	DTA143ES	TRANSISTOR	
Q6	DTC144WS	TRANSISTOR	
Q7	2SC1740S	TRANSISTOR	
Q9	2SC3311A	TRANSISTOR	
D1	1SS133	DIODE	
	or MA165	DIODE	
D2	1SS133	DIODE	
	or MA165	DIODE	
D3	1SS133	DIODE	
	or MA165	DIODE	
D4	1SS133	DIODE	
	or MA165	DIODE	
D6	1SS133	DIODE	
	or MA165	DIODE	
D7	1SS133	DIODE	
	or MA165	DIODE	
R1	QRD161J-331	RESISTOR	330Ω,1/6W
R2	QRD161J-331	RESISTOR	330Ω,1/6W
R3	QRD161J-331	RESISTOR	330Ω,1/6W
R4	QRD161J-331	RESISTOR	330Ω,1/6W
R5	QRD161J-473	RESISTOR	47KΩ,1/6W
R6	QRD161J-473	RESISTOR	47KΩ,1/6W
R7	QRD161J-104	RESISTOR	100KΩ,1/6W
R8	QRD161J-104	RESISTOR	100KΩ,1/6W
R9	QRD161J-124	RESISTOR	120KΩ,1/6W
R10	QRD161J-124	RESISTOR	120KΩ,1/6W
R11	QRD161J-103	RESISTOR	10KΩ,1/6W
R12	QRD161J-103	RESISTOR	10KΩ,1/6W
R13	QRD161J-362	RESISTOR	3.6KΩ,1/6W
R14	QRD161J-362	RESISTOR	3.6KΩ,1/6W
R19	QRD161J-223	RESISTOR	22KΩ,1/6W
R20	QRD161J-273	RESISTOR	27KΩ,1/6
R21	QRD161J-683	RESISTOR	68KΩ,1/6
R22	QRD161J-154	RESISTOR	150KΩ,1/6
R23	QRD161J-102	RESISTOR	1KΩ,1/6
R24	QRD161J-222	RESISTOR	2.2KΩ,1/6
R25	QRD161J-222	RESISTOR	2.2KΩ,1/6
R26	QRD161J-473	RESISTOR	47KΩ,1/6
R27	QRD161J-823	RESISTOR	82KΩ,1/6
R28	QRD161J-221	RESISTOR	220Ω,1/6
R29	QRD161J-512	RESISTOR	5.1KΩ,1/6
R35	QRD161J-102	RESISTOR	1KΩ,1/6
R36	QRD161J-473	RESISTOR	47KΩ,1/6
R37	QRD161J-473	RESISTOR	47KΩ,1/6
R38	QRD161J-563	RESISTOR	56KΩ,1/6
R39	QRD161J-563	RESISTOR	56KΩ,1/6
R40	QRD161J-102	RESISTOR	1KΩ,1/6
R41	QRD161J-102	RESISTOR	1KΩ,1/6
R42	QRD161J-680	RESISTOR	68Ω,1/6
R43	QRD161J-680	RESISTOR	68Ω,1/6
R44	QRD161J-561	RESISTOR	560Ω,1/6
R45	QRD161J-103	RESISTOR	10KΩ,1/6
R46	QRD161J-561	RESISTOR	560Ω,1/6
R47	QRD161J-103	RESISTOR	10KΩ,1/6
R52	QRD161J-271	RESISTOR	270Ω,1/6
C1	QETC1CM-226	E CAPACITOR	22μF,16
C2	QENC1CM-226	NP E CAPACITOR	22μF,16
C3	QENC1CM-226	NP E CAPACITOR	22μF,16
C4	QETC1CM-226	E CAPACITOR	22μF,16
C5	QENC1CM-226	NP E CAPACITOR	22μF,16
C6	QENC1CM-226	NP E CAPACITOR	22μF,16
C9	QEP61CM-106	NP E CAPACITOR	10μF,16
C10	QEP61CM-106	NP E CAPACITOR	10μF,16
C11	QETC1CM-106	E CAPACITOR	10μF,16
C12	QETC1CM-106	E CAPACITOR	10μF,16
C13	QETC1CM-476	E CAPACITOR	47μF,16
C14	QETC1HM-105	E CAPACITOR	1μF,50
C15	QETC1EM-475	E CAPACITOR	4.7μF,25
C16	QETC1HM-105	E CAPACITOR	1μF,50
C17	QETC1HM-105	E CAPACITOR	1μF,50
C18	QCBB1HJ-151	CAPACITOR	150PF,50
C19	QETC1EM-475	E CAPACITOR	4.7μF,25
C22	QETC1CM-476	E CAPACITOR	47μF,16
C23	QETC1CM-476	E CAPACITOR	47μF,16
C24	QETC1CM-106	E CAPACITOR	10μF,16
C25	QETC1CM-106	E CAPACITOR	10μF,16
C26	QETC1AM-476	E CAPACITOR	47μF,10
C27	QETC1AM-476	E CAPACITOR	47μF,10
C28	QEK61CM-106	E CAPACITOR	10μF,16
C29	QEK61CM-106	E CAPACITOR	10μF,16
C30	QCBB1HJ-102	CAPACITOR, EG	0.001μF,50
C31	QCBB1HJ-102	CAPACITOR, EG	0.001μF,50
C32	QCBB1HJ-102	CAPACITOR, EG	0.001μF,50
C33	QCBB1HJ-102	CAPACITOR, EG	0.001μF,50

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C34	QETC1CM-337	E CAPACITOR	330μF,16V
CN1	PU58844-6	CAP HOUSING	
CN2	PU58844-5	CAP HOUSING	
CN3	PU58844-3	CAP HOUSING	
CN4	PEMC0714-015	CAP HOUSING	
CN5	PEMC0714-009	CAP HOUSING	
CN6	PU59555-4	CAP HOUSING	

– SERVO SECTION –

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
IC401	HD49733NT	IC	
	or HD49733ANT	IC	
IC441	LM358N	IC	
	or UPC358C	IC	
	or LM358P	IC	
IC442	MC14066BCP	IC	
	or BU4066B	IC	
IC451	BA7039	IC	
	or XRA7039	IC	
Q401	2SA1267(YG)-TJK	TRANSISTOR	
	or 2SA1309(QRS)	TRANSISTOR	
	or 2SA933S(QRS)	TRANSISTOR	
Q402	DTC144ES	TRANSISTOR	
Q441	DTC124ES	TRANSISTOR	
Q442	DTC124ES	TRANSISTOR	
D402	1SS133	DIODE	
	or MA165	DIODE	
D403	1SS133	DIODE	
	or MA165	DIODE	
D404	1SS133	DIODE	
	or MA165	DIODE	
D405	1SS133	DIODE	
	or MA165	DIODE	
D406	1SS133	DIODE	
	or MA165	DIODE	
D407	1SS133	DIODE	
	or MA165	DIODE	
D408	1SS133	DIODE	
	or MA165	DIODE	
D411	1SS133	DIODE	
	or MA165	DIODE	
D412	1SS133	DIODE	
	or MA165	DIODE	
D451	1SS133	DIODE	
R401	QRD161J-821	RESISTOR	820Ω,1/6W
R402	QRD161J-102	RESISTOR	1KΩ,1/6W
R403	QRD161J-105	RESISTOR	1MΩ,1/6W
R404	QRD161J-102	RESISTOR	1KΩ,1/6W
R405	QRD161J-102	RESISTOR	1KΩ,1/6W
R406	QRD161J-102	RESISTOR	1KΩ,1/6W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R407	QRD161J-223	RESISTOR	22KΩ,1/6W
R408	QRD161J-225	RESISTOR	2.2MΩ,1/6W
R409	QRD161J-683	RESISTOR	68KΩ,1/6W
R410	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R411	QRD161J-123	RESISTOR	12KΩ,1/6W
R412	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R413	QRD161J-392	RESISTOR	3.9KΩ,1/6W
R414	QRD161J-105	RESISTOR	1MΩ,1/6W
R415	QRD161J-273	RESISTOR	27KΩ,1/6W
R417	QRD161J-224	RESISTOR	220KΩ,1/6W
R418	QRD161J-474	RESISTOR	470KΩ,1/6W
R419	QRD161J-823	RESISTOR	82KΩ,1/6W
R420	QRD161J-105	RESISTOR	1MΩ,1/6W
R421	QRD161J-273	RESISTOR	27KΩ,1/6W
R422	QRD161J-273	RESISTOR	27KΩ,1/6W
R423	QRD161J-335	RESISTOR	3.3MΩ,1/6W
R424	QRD161J-334	RESISTOR	330KΩ,1/6W
R425	QRD161J-102	RESISTOR	1KΩ,1/6W
R426	QRD161J-822	RESISTOR	8.2KΩ,1/6W
R428	QRD161J-473	RESISTOR	47KΩ,1/6W
R429	QRD161J-104	RESISTOR	100KΩ,1/6W
R431	QRD161J-103	RESISTOR	10KΩ,1/6W
R434	QRD161J-274	RESISTOR	270KΩ,1/6W
R435	QRD161J-274	RESISTOR	270KΩ,1/6W
R441	QRD161J-104	RESISTOR	100KΩ,1/6W
R442	QRD161J-104	RESISTOR	100KΩ,1/6W
R443	QRD161J-103	RESISTOR	10KΩ,1/6W
R444	QRD161J-393	RESISTOR	39KΩ,1/6W
R445	QRD161J-105	RESISTOR	1MΩ,1/6W
R446	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R447	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R448	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R449	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R451	QRD161J-102	RESISTOR	1KΩ,1/6W
R452	QRD161J-182	RESISTOR	1.8KΩ,1/6W
R453	QRD161J-102	RESISTOR	1KΩ,1/6W
R455	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R456	QRD161J-562	RESISTOR	5.6KΩ,1/6W
R458	QRD161J-184	RESISTOR	180KΩ,1/6W
R462	QRD161J-222	RESISTOR	2.2KΩ,1/6W
C401	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C402	QEK61AM-226	E CAPACITOR	22μF,10V
C403	QEK61AM-226	E CAPACITOR	22μF,10V
C404	QCBB1HJ-271	CAPACITOR	270PF,50V
C405	QCBB1HJ-561	CAPACITOR	560PF,50V
C406	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C407	QEK61HM-105	E CAPACITOR	1μF,50V
C408	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C409	QFV71HJ-563	TF CAPACITOR	0.056μF,50V
	or QFN31HJ-563	M CAPACITOR	0.056μF,50V
C410	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C412	QCFB1EZ-223	CAPACITOR	0.022μF,25V
C413	QEK61AM-226	E CAPACITOR	22μF,10V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C414	QFV71HJ-224	TF CAPACITOR	0.22μF,50V
		or QFN31HJ-224	M CAPACITOR	0.22μF,50V
	C415	QFL31HJ-682	M CAPACITOR	0.0068μF,50V
		or QFN31HJ-682	M CAPACITOR	0.0068μF,50V
	C416	QEK61EM-475	E CAPACITOR	4.7μF,25V
	C417	QEK61EM-475	E CAPACITOR	4.7μF,25V
	C418	QEK61CM-106	E CAPACITOR	10μF,16V
	C419	QEK61CM-106	E CAPACITOR	10μF,16V
	C420	QFV71HJ-223	TF CAPACITOR	0.022μF,50V
		or QFN31HJ-223	M CAPACITOR	0.022μF,50V
	C421	QFV71HJ-184	TF CAPACITOR	0.18μF,50V
	C422	QCBB1HJ-471	CAPACITOR	470PF,50V
	C423	QFL31HJ-682	M CAPACITOR	0.0068μF,50V
		or QFN31HJ-682	M CAPACITOR	0.0068μF,50V
	C426	QCBB1HJ-181	CAPACITOR	180PF,50V
	C427	QFV71HJ-473	TF CAPACITOR	0.047μF,50V
		or QFN31HJ-473	M CAPACITOR	0.047μF,50V
	C441	QEK61CM-106	E CAPACITOR	10μF,16V
	C451	QCVB1CM-103	CAPACITOR	0.01μF,16V
	C452	QCVB1CM-103	CAPACITOR	0.01μF,16V
	C453	QCVB1CM-103	CAPACITOR	0.01μF,16V
	C454	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
	C455	QCVB1CM-103	CAPACITOR	0.01μF,16V
	C456	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
	C457	QCVB1CM-103	CAPACITOR	0.01μF,16V
	C458	QEK61AM-226	E CAPACITOR	22μF,10V
	C459	QCVB1CM-103	CAPACITOR	0.01μF,16V
	L451	PU59152-270J	COIL	27μH
	CN401	PU58844-3	CAP HOUSING	
	CN402	PU59555-4	CAP HOUSING	
	CN403	PU58844-8	CAP HOUSING	
	CN404	PEMC0714-015	CAP HOUSING	
	CN405	PU59555-3	CAP HOUSING	
⚠	CP401	ICP-F15	CIRCUIT PROTECTOR	

- MECHACON SECTION -

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC601	M37419M8-116SP	IC	
	IC602	BA6251	IC	
	IC603	M50255P	IC	
	IC604	CAT35C104P-006	IC, EG	
	IC604	CAT35C104P-007	IC, E	
	Q601	2SB1256	TRANSISTOR	
	Q602	2SC3199(GB)-TJK	TRANSISTOR	
	D601	1SS133	DIODE	
		or MA165	DIODE	
	D602	11ES2	DIODE	
		or 1SR139-200	DIODE	
		or S5688G	DIODE	
		or ERA15-02	DIODE	
	D603	1SS133	DIODE	
		or MA165	DIODE	
	D604	MTZ7.5B	ZENER DIODE	
		or HZS7.5EB2	ZENER DIODE	
		or UZ7.5BSB	ZENER DIODE	
	D605	1SS133	DIODE	
		or MA165	DIODE	
	D606	1SS133	DIODE	
		or MA165	DIODE	
	D607	1SS133	DIODE	
		or MA165	DIODE	
	D610	MTZ7.5B	ZENER DIODE	
		or HZS7.5EB2	ZENER DIODE	
	R601	QRD161J-332	RESISTOR	3.3KΩ,1/6V
	R602	QRD161J-332	RESISTOR	3.3KΩ,1/6V
	R604	QRD161J-102	RESISTOR	1KΩ,1/6V
	R605	QRD161J-102	RESISTOR	1KΩ,1/6V
	R606	QRD161J-472	RESISTOR	4.7KΩ,1/6V
	R607	QRD161J-472	RESISTOR	4.7KΩ,1/6V
	R608	QRD161J-472	RESISTOR	4.7KΩ,1/6V
	R609	QRD161J-472	RESISTOR	4.7KΩ,1/6V
	R610	QRD161J-472	RESISTOR	4.7KΩ,1/6V
	R611	QRD161J-103	RESISTOR	10KΩ,1/6V
	R612	QRD161J-472	RESISTOR	4.7KΩ,1/6V
	R613	QRD161J-472	RESISTOR	4.7KΩ,1/6V
	R614	QRD161J-472	RESISTOR	4.7KΩ,1/6V
	R615	QRD161J-472	RESISTOR	4.7KΩ,1/6V
	R616	QRD161J-103	RESISTOR	10KΩ,1/6V
	R617	QRD161J-102	RESISTOR	1KΩ,1/6V
	R618	QRD161J-472	RESISTOR	4.7KΩ,1/6V
	R619	QRD161J-472	RESISTOR	4.7KΩ,1/6V
	R620	QRD161J-472	RESISTOR	4.7KΩ,1/6V
	R621	QRD161J-472	RESISTOR	4.7KΩ,1/6V
	R622	QRD161J-472	RESISTOR	4.7KΩ,1/6V
	R623	QRD161J-472	RESISTOR	4.7KΩ,1/6V
	R624	QRD161J-103	RESISTOR	10KΩ,1/6V
	R625	QRD161J-105	RESISTOR	1MΩ,1/6
	R626	QRD161J-681	RESISTOR	680Ω,1/6
	R627	QRD161J-102	RESISTOR	1KΩ,1/6
	R628	QRD161J-472	RESISTOR	4.7KΩ,1/6
	R629	QRD161J-472	RESISTOR	4.7KΩ,1/6
	R630	QRD161J-472	RESISTOR	4.7KΩ,1/6
	R631	QRD161J-102	RESISTOR	1KΩ,1/6
	R632	QRD161J-102	RESISTOR	1KΩ,1/6
	R633	QRD161J-472	RESISTOR	4.7KΩ,1/6
	R634	QRD161J-103	RESISTOR	10KΩ,1/6
	R635	QRD161J-563	RESISTOR	56KΩ,1/6
	R636	QRD161J-154	RESISTOR	150KΩ,1/6
	R637	QRD161J-333	RESISTOR	33KΩ,1/6
	R638	QRD161J-303	RESISTOR	30KΩ,1/6
	R639	QRD161J-224	RESISTOR	220KΩ,1/6
	R640	QRD161J-222	RESISTOR	2.2KΩ,1/6
	R641	QRD161J-472	RESISTOR	4.7KΩ,1/6
	R642	QRD161J-103	RESISTOR	10KΩ,1/6
	R643	QRD161J-333	RESISTOR	33KΩ,1/6

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R644	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R645	QRD161J-471	RESISTOR	470Ω,1/6W
R646	QRD161J-103	RESISTOR	10KΩ,1/6W
R648	QRD161J-391	RESISTOR	390Ω,1/6W
R649	QRD161J-182	RESISTOR	1.8KΩ,1/6W
RA601	QRB045J-103XC	RESISTOR ARRAY	
	or QRB045J-103XF	RESISTOR ARRAY	
C601	QCFB1EZ-223	CAPACITOR	0.022μF,25V
C602	QEK61EM-335	E CAPACITOR	3.3μF,25V
C604	QEK61HM-105	E CAPACITOR	1μF,50V
C605	QETC0JM-107	E CAPACITOR	100μF,6.3V
C606	QCBB1HJ-121	CAPACITOR	120PF,50V
C607	QCC11EJ-104	CAPACITOR	0.1μF,25V
	or QCC11EK-104	CAPACITOR	0.1μF,25V
L601	PU59152-2R2J	COIL	2.2μH
⚠ CF601	PEVB0340	CERAMIC FILTER	
CN601	PEMC0722-018	WIRE TRAP	
	or PEMC0753-018	WIRE TRAP	
CN602	PU59555-4	CAP HOUSING	
CN603	PU58844-2	CAP HOUSING	
CN604	PU59555-7	CAP HOUSING	
CN605	PU59555-10	CAP HOUSING	
CN606	PU58844-4	CAP HOUSING	
CN607	PU59555-4	CAP HOUSING	
CN609	PU59555-7	CAP HOUSING	
CN610	PEMC0714-011	CAP HOUSING	
CN612	PU58844-2	CAP HOUSING	
⚠ CP601	ICP-N25	CIRCUIT PROTECTOR	
⚠ CP602	ICP-F38	CIRCUIT PROTECTOR	

- SOUND MENU BOARD ASSEMBLY<71> -

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA2	PB10438A2-03	SOUND MENU BOARD ASSY	
IC101	XRA15218	IC	
	or BA15218	IC	
IC102	XRA15218	IC	
	or BA15218	IC	
IC103	TDA3810	IC	
Q101	DTA144ES	TRANSISTOR	
Q102	DTA144ES	TRANSISTOR	
Q103	2SC1740S	TRANSISTOR	
Q104	2SC1740S	TRANSISTOR	
Q105	2SC1740S	TRANSISTOR	
Q106	2SC1740S	TRANSISTOR	
D101	1SS133	DIODE	
	or MA165	DIODE	
D102	1SS133	DIODE	
	or MA165	DIODE	
R101	QRD161J-473	RESISTOR	47KΩ,1/6W
R102	QRD161J-473	RESISTOR	47KΩ,1/6W
R103	QRD161J-334	RESISTOR	330KΩ,1/6W
R104	QRD161J-334	RESISTOR	330KΩ,1/6W
R105	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R106	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R107	QRD161J-562	RESISTOR	5.6KΩ,1/6W
R108	QRD161J-562	RESISTOR	5.6KΩ,1/6W
R109	QRD161J-103	RESISTOR	10KΩ,1/6W
R110	QRD161J-103	RESISTOR	10KΩ,1/6W
R111	QRD161J-103	RESISTOR	10KΩ,1/6W
R112	QRD161J-103	RESISTOR	10KΩ,1/6W
R113	QRD161J-122	RESISTOR	1.2KΩ,1/6W
R114	QRD161J-122	RESISTOR	1.2KΩ,1/6W
R115	QRD161J-331	RESISTOR	330Ω,1/6W
R116	QRD161J-331	RESISTOR	330Ω,1/6W
R117	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R118	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R119	QRD161J-473	RESISTOR	47KΩ,1/6W
R120	QRD161J-473	RESISTOR	47KΩ,1/6W
R121	QRD161J-331	RESISTOR	330Ω,1/6W
R122	QRD161J-331	RESISTOR	330Ω,1/6W
R123	QRD161J-122	RESISTOR	1.2KΩ,1/6W
R124	QRD161J-122	RESISTOR	1.2KΩ,1/6W
R125	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R126	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R127	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R128	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R129	QRD161J-103	RESISTOR	10KΩ,1/6W
R130	QRD161J-183	RESISTOR	18KΩ,1/6W
R131	QRD161J-183	RESISTOR	18KΩ,1/6W
R132	QRD161J-103	RESISTOR	10KΩ,1/6W
R133	QRD161J-163	RESISTOR	16KΩ,1/6W
R134	QRD161J-103	RESISTOR	10KΩ,1/6W
R135	QRD161J-823	RESISTOR	82KΩ,1/6W
R136	QRD161J-183	RESISTOR	18KΩ,1/6W
R137	QRD161J-203	RESISTOR	20KΩ,1/6W
R138	QRD161J-163	RESISTOR	16KΩ,1/6W
R139	QRD161J-223	RESISTOR	22KΩ,1/6W
R140	QRD161J-223	RESISTOR	22KΩ,1/6W
R141	QRD161J-113	RESISTOR	11KΩ,1/6W
C101	QFL31HJ-682	M CAPACITOR	0.0068μF,50V
C102	QFL31HJ-682	M CAPACITOR	0.0068μF,50V
C103	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C104	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C105	QETC1AM-476	E CAPACITOR	47μF,10V
C106	QETC1AM-476	E CAPACITOR	47μF,10V
C107	QETC1CM-106	E CAPACITOR	10μF,16V
C108	QETC1CM-106	E CAPACITOR	10μF,16V
C109	QETC1HM-225	E CAPACITOR	2.2μF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C110	QETC1HM-225	E CAPACITOR	2.2μF,50V
C111	QETC1AM-107	E CAPACITOR	100μF,10V
C112	QETC1AM-107	E CAPACITOR	100μF,10V
C113	QENC1HM-225	NP.E CAP	2.2μF,50V
C114	QENC1HM-225	NP.E CAP	2.2μF,50V
C115	QETC1AM-107	E CAPACITOR	100μF,10V
C116	QCXB1CM-182	CAPACITOR	0.0018μF,16V
C117	QETC1CM-476	E CAPACITOR	47μF,16V
C118	QETC1AM-476	E CAPACITOR	47μF,10V
C119	QETC1AM-476	E CAPACITOR	47μF,10V
C120	QETC1CM-476	E CAPACITOR	47μF,16V
C121	QCVB1CN-103	CAPACITOR	0.01μF,16V
C122	QFV71HJ-153	TF CAPACITOR	0.015μF,50V
C123	QFV71HJ-153	TF CAPACITOR	0.015μF,50V
C124	QFV71HJ-223	TF CAPACITOR	0.022μF,50V
C125	QFV71HJ-333	TF CAPACITOR	0.033μF,50V
C126	QCXB1CM-182	CAPACITOR	0.0018μF,16V
CN101	PEMC0713-109	HOUSING	

- TERMINAL BOARD ASSEMBLY<06> -

PWBA3	PB10438A3-03	TERMINAL BOARD ASSY, E
PWBA3	PB10438B3-03	TERMINAL BOARD ASSY, EG
CN201	PU59513-2	CAP HOUSING
CN202	PU59513-5	CAP HOUSING, EG
CN202	PU59513-3	CAP HOUSING, E
CN203	PU59513-3	CAP HOUSING

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VIDEO UNIT BOARD ASSEMBLY <05>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	PB10462A-02	VIDEO UNIT BOARD ASSEMBLY
IC401	PB20432B	Y.MODULE BOARD ASSY
IC403	CXL5003M	IC
IC404	TC4S81F	IC
IC501	PB20463A	C MODULE BOARD ASSEMBLY
IC502	TC4S01F	IC
IC503	TC4S71F	IC
IC505	TC4S71F	IC
IC601	XRA7106LS	IC
	or BA7106LS	IC
Q403	DTC144WU	TRANSISTOR
Q404	DTC124EU	TRANSISTOR
Q406	2SC4081(QRS)	TRANSISTOR
Q407	2SC4081(QRS)	TRANSISTOR
Q408	2SC4081(QRS)	TRANSISTOR
Q409	2SC4081(QRS)	TRANSISTOR
Q413	2SA1576(QRS)	TRANSISTOR
Q414	DTC124EU	TRANSISTOR
Q417	2SA1576(QRS)	TRANSISTOR
Q418	DTC144WU	TRANSISTOR
Q419	DTA144EU	TRANSISTOR
Q420	DTC124EU	TRANSISTOR
Q501	DTC144WU	TRANSISTOR
Q502	DTC114EU	TRANSISTOR
Q504	DTC144WU	TRANSISTOR
Q505	DTC144WU	TRANSISTOR
Q506	2SC4081(QRS)	TRANSISTOR
Q507	2SC4081(QRS)	TRANSISTOR
Q508	2SC4081(QRS)	TRANSISTOR
Q510	DTA144EU	TRANSISTOR
Q511	2SC4081(QRS)	TRANSISTOR
Q512	2SC4081(QRS)	TRANSISTOR
Q513	2SC4081(QRS)	TRANSISTOR
Q514	2SA1576(QRS)	TRANSISTOR
Q515	2SA1576(QRS)	TRANSISTOR
Q517	2SC4081(QRS)	TRANSISTOR
Q518	DTC144WU	TRANSISTOR
Q519	2SA1576(QRS)	TRANSISTOR
Q520	DTC144WU	TRANSISTOR
Q525	DTA144EU	TRANSISTOR
Q530	DTC144WU	TRANSISTOR
Q531	DTA124EU	TRANSISTOR
Q532	DTC144WU	TRANSISTOR
Q533	DTA144EU	TRANSISTOR
Q534	DTC144WU	TRANSISTOR
Q535	DTC144WU	TRANSISTOR
Q536	DTA144EU	TRANSISTOR
Q537	DTC144WU	TRANSISTOR
Q538	DTA124EU	TRANSISTOR
D403	DAN202U	DIODE
D404	DAN202U	DIODE
D406	DAP202U	DIODE
D407	DAN202U	DIODE
D410	DAN202U	DIODE
D411	DAN202U	DIODE
D504	DAN202U	DIODE
D505	DAN202U	DIODE
D506	DAP202U	DIODE
D509	DAP202U	DIODE
D524	DAN202U	DIODE
D530	DAN202U	DIODE
D531	DAN202U	DIODE
D532	DAN202U	DIODE

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R401	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R402	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R403	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R405	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
R406	QRS188J-563YN	RESISTOR	56KΩ,1/8W
R407	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R408	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R409	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R410	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R411	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R412	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R414	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R416	QVZ3518-151AZ	V RESISTOR, SUB EMPH INPUT	150Ω
	or QVZ3523-151	V RESISTOR	150Ω
	or QVZ3523-151AZ	V RESISTOR	150Ω
	or QVZ3518-151	V RESISTOR	150Ω
R417	QRSA08J-241YN	RESISTOR	240Ω,1/10W
R419	QRSA08J-223Y	RESISTOR	22KΩ,1/10W
R420	QRS188J-122YN	RESISTOR	1.2KΩ,1/8W
R421	QRS188J-272YN	RESISTOR	2.7KΩ,1/8W
R422	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
R423	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
R424	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R425	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R426	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R427	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
R428	QRSA08J-475YN	RESISTOR	4.7MΩ,1/10W
R430	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R436	QRSA08J-822YN	RESISTOR	8.2KΩ,1/10W
R438	QRSA08J-431YN	RESISTOR	430Ω,1/10W
R440	QRSA08J-822YN	RESISTOR	8.2KΩ,1/10W
R441	QRSA08J-394YN	RESISTOR	390KΩ,1/10W
R442	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R444	QVZ3518-102AZ	V RESISTOR, YNR NC BALANCE	1KΩ
	or QVZ3523-102	V RESISTOR	1KΩ
	or QVZ3518-102	V RESISTOR	1KΩ
	or QVZ3523-102AZ	V RESISTOR	1KΩ
R445	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R446	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
R451	QRSA08J-475YN	RESISTOR	4.7MΩ,1/10W
R453	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R454	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R455	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R456	QRSA08J-242YN	RESISTOR	2.4KΩ,1/10W
R458	QRD161J-332	RESISTOR	3.3KΩ,1/6W
R459	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R501	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
R503	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R506	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R507	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R508	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R509	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R511	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R513	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R514	QRSA08J-102YN	RESISTOR	1KΩ,1/10W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R515	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R516	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R517	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
R518	QRS188J-102YN	RESISTOR	1KΩ,1/8W
R519	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R520	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R521	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R522	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R523	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R524	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R525	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R526	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R527	QRS188J-103YN	RESISTOR	10KΩ,1/8W
R528	QRS188J-102YN	RESISTOR	1KΩ,1/8W
R529	QRS188J-102YN	RESISTOR	1KΩ,1/8W
R530	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R531	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R532	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R533	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R534	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R540	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R541	QRSA08J-911YN	RESISTOR	910Ω,1/10W
R542	QRSA08J-301YN	RESISTOR	300Ω,1/10W
R543	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R547	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R548	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R549	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R550	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R551	QRS188J-333YN	RESISTOR	33KΩ,1/8W
R559	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
R561	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
R563	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
R564	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
R565	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
R566	QRSA08J-335YN	RESISTOR	3.3MΩ,1/10W
R568	QRS188J-222YN	RESISTOR	2.2KΩ,1/8W
R569	QRSA08J-124YN	RESISTOR	120KΩ,1/10W
R570	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
R571	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R572	QRSA08J-125YN	RESISTOR	1.2MΩ,1/10W
R573	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R574	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R575	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R576	QRSA08J-225YN	RESISTOR	2.2MΩ,1/10W
R577	QRD161J-103YN	RESISTOR	10KΩ,1/6W
R578	QRSA08J-124YN	RESISTOR	120KΩ,1/10W
R579	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R601	QRSA08J-914YN	RESISTOR	910KΩ,1/10W
R602	QRS188J-104YN	RESISTOR	100KΩ,1/8W
R603	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
R604	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
C401	QETC0JM-107	E CAPACITOR	100μF,6.3V
C403	QCSA1HJ-150	CAPACITOR	15PF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C405	QCC11EJ-473	CAPACITOR	0.047µF,25V
C406	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C407	QETC1CM-336	E CAPACITOR	33µF,16V
C409	QETC1EM-475	E CAPACITOR	4.7µF,25V
C411	QETC0JM-227	E CAPACITOR	220µF,6.3V
C413	QETC1CM-106	E CAPACITOR	10µF,16V
C414	QETC0JM-476	E CAPACITOR	47µF,6.3V
C415	QETC0JM-107	E CAPACITOR	100µF,6.3V
C416	QETC1EM-475	E CAPACITOR	4.7µF,25V
C417	QETC1HM-225	E CAPACITOR	2.2µF,50V
C418	QETC1HM-225	E CAPACITOR	2.2µF,50V
C419	QETC1CM-226	E CAPACITOR	22µF,16V
C420	QETC0JM-107	E CAPACITOR	100µF,6.3V
C422	QETC0JM-476	E CAPACITOR	47µF,6.3V
C423	QCSA1HJ-7R0	CAPACITOR	7PF,50V
C424	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C425	QCFA1EZ-104	CAPACITOR	0.1µF,25V
C426	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C427	QETC1HM-474	E CAPACITOR	0.47µF,50V
C428	QCYA1HK-103	CAPACITOR	0.01µF,50V
C429	QETC0JM-476	E CAPACITOR	47µF,6.3V
C430	QCFA1HZ-223	CAPACITOR	0.022µF,50V
C431	QCYA1HK-103	CAPACITOR	0.01µF,50V
C432	QETC1CM-476	E CAPACITOR	47µF,16V
C435	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C436	QETC1CM-476	E CAPACITOR	47µF,16V
C437	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C439	QCSA1HJ-181	CAPACITOR	180PF,50V
C440	QCSA1HJ-471	CAPACITOR	470PF,50V
C442	QCSA1HJ-330	CAPACITOR	33PF,50V
C443	QCSA1HJ-180	CAPACITOR	18PF,50V
C444	QCSA1HJ-151	CAPACITOR	150PF,50V
C445	QETC1EM-475	E CAPACITOR	4.7µF,25V
C446	QETC1CM-106	E CAPACITOR	10µF,16V
C448	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C449	QETC0JM-476	E CAPACITOR	47µF,6.3V
C451	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C452	QCFA1EZ-104	CAPACITOR	0.1µF,25V
C453	QCSA1HJ-100	CAPACITOR	10PF,50V
C454	QCSA1HJ-100	CAPACITOR	10PF,50V
C456	QCYA1HK-103	CAPACITOR	0.01µF,50V
C457	QCSA1HJ-470	CAPACITOR	47PF,50V
C501	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C503	QETC1EM-475	E CAPACITOR	4.7µF,25V
C508	QETC1HM-335	E CAPACITOR	3.3µF,50V
C509	QCYA1EJ-273	CAPACITOR	0.027µF,25V
C512	QETC1HM-224	E CAPACITOR	0.22µF,50V
C514	QETC1HM-104	E CAPACITOR	0.1µF,50V
C517	QETC1HM-105	E CAPACITOR	1µF,50V
C518	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C519	QCSA1HJ-102	CAPACITOR	0.001µF,50V
C520	QCSA1HJ-331	CAPACITOR	330PF,50V
C522	QETC1EM-335	E CAPACITOR	3.3µF,25V
C523	QETC1HM-105	E CAPACITOR	1µF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C524	QCSA1HJ-220	CAPACITOR	22PF,5
C525	QCFA1HZ-223	CAPACITOR	0.022µF,5
C526	QETC1HM-105	E CAPACITOR	1µF,5
C527	QETC1HM-105	E CAPACITOR	1µF,5
C528	QETC0JM-476	E CAPACITOR	47µF,6.
C529	QCFA1HZ-103	CAPACITOR	0.01µF,5
C530	QCSA1HJ-330	CAPACITOR	33PF,5
C531	QCSA1HJ-390	CAPACITOR	39PF,5
C532	QFN31HJ-473	M CAPACITOR	0.047µF,5
C533	QCSA1HJ-560	CAPACITOR	56PF,5
C534	QCSA1HJ-390	CAPACITOR	39PF,5
C535	QCFA1HZ-103	CAPACITOR	0.01µF,5
C536	QCYA1HK-682	CAPACITOR	0.0068µF,5
C537	QCSA1HJ-222	CAPACITOR	0.0022µF,5
C538	QCSA1HJ-820	CAPACITOR	82PF,5
C539	QCFA1HZ-103	CAPACITOR	0.01µF,5
C542	QCFA1HZ-103	CAPACITOR	0.01µF,5
C544	QETC0JM-107	E CAPACITOR	100µF,6.
C545	QETC0JM-107	E CAPACITOR	100µF,6.
C546	QETC0JM-107	E CAPACITOR	100µF,6.
C547	QCSA1HJ-220	CAPACITOR	22PF,5
C548	QCSA1HJ-220	CAPACITOR	22PF,5
C549	QCSA1HJ-121	CAPACITOR	120PF,5
C550	QETC1HM-105	E CAPACITOR	1µF,5
C551	QCFA1HZ-103	CAPACITOR	0.01µF,5
C552	QCFA1HZ-103	CAPACITOR	0.01µF,5
C553	QCFA1HZ-103	CAPACITOR	0.01µF,5
C554	QCF81HZ-103	CAPACITOR	0.01µF,5
C555	QCSA1HJ-470	CAPACITOR	47PF,5
C558	QCYA1EJ-273	CAPACITOR	0.027µF,2
C559	QCYA1HJ-822	CAPACITOR	0.0082µF,5
C560	QCYA1EJ-273	CAPACITOR	0.027µF,2
C561	QCFA1HZ-103	CAPACITOR	0.01µF,5
C562	QCFA1HZ-103	CAPACITOR	0.01µF,5
C563	QCFA1HZ-103	CAPACITOR	0.01µF,5
C564	QCFA1EZ-104	CAPACITOR	0.1µF,2
C565	QCFA1EZ-104	CAPACITOR	0.1µF,2
C567	QCSA1HJ-270	CAPACITOR	27PF,5
C568	QETC1HM-474	E CAPACITOR	0.47µF,5
C569	QCYA1HJ-822	CAPACITOR	0.0082µF,5
C570	QCSA1HJ-220	CAPACITOR	22PF,5
C601	QETC1CM-106	E CAPACITOR	10µF,1
C602	QETC1EM-335	E CAPACITOR	3.3µF,2
C603	QCSA1HJ-471	CAPACITOR	470PF,5
C604	QCFA1HZ-103	CAPACITOR	0.01µF,5
C605	QCFA1HZ-103	CAPACITOR	0.01µF,5
C607	QCFA1HZ-103	CAPACITOR	0.01µF,5
C609	QFN31HJ-471	M CAPACITOR	470PF,5
C610	QCYA1HK-472	CAPACITOR	0.0047µF,5
C611	QCSA1HJ-5R0	CAPACITOR	5PF,5
C613	QCFA1HZ-103	CAPACITOR	0.01µF,5
C614	QETC0JM-107	E CAPACITOR	100µF,6.
C616	QCTA1CH-220	CAPACITOR	22PF,1
L401	PU59153-101K	COIL	100

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
L403	PU59988-470JY	COIL	47μH
L404	PU59153-101K	COIL	100μH
L405	PU48530-101K	COIL	100μH
L406	PU59153-101K	COIL	100μH
L407	PU59153-101K	COIL	100μH
L408	PU59988-220JY	COIL	22μH
L409	PU48530-471J	COIL	470μH
L410	PU59153-101K	COIL	100μH
L411	PU59988-181JY	COIL	180μH
L412	PU59988-120JY	COIL	12μH
L501	PU48530-181J	COIL	180μH
L502	PU59153-822J	COIL	8.2mH
L503	PU59988-1R0JY	COIL	1μH
L504	PU48530-181J	COIL	180μH
L505	PU48530-181J	COIL	180μH
L506	PU59988-330JY	COIL	33μH
L509	PU59988-150JY	COIL	15μH
L510	PU48530-101K	COIL	100μH
L511	PU59988-390JY	COIL	39μH
L512	PU48530-222J	COIL	2.2mH
L513	PU59988-221JY	COIL	220μH
L515	PU59988-330JY	COIL	33μH
L516	PU59988-330JY	COIL	33μH
L517	PU48530-821J	COIL	820μH
L518	PU59988-100JY	COIL	10μH
L519	PU58201-820J	COIL	82μH
L601	PU48530-101K	COIL	100μH
EQ501	PU60811	EQUALIZER	
LPF401	PU60806-3	LOW PASS FILTER	
LPF402	PU60737	LOW PASS FILTER	
LPF403	PU60812	LOW PASS FILTER	
LPF501	PU58022	LOW PASS FILTER	
BPF501	PELN0396	BAND PASS FILTER	
BPF502	PU60654	BAND PASS FILTER	
	or PU60654-2	BAND PASS FILTER	
CF501	PU57073	CERAMIC FILTER	
DL501	PU58971-3	2H DELAY LINE	
LC601	PU60655	COIL, SECAM DET	
△ X501	PU60653	CRYSTAL UNITS	
SLD1	PU61177	SHIELD CASE	
SLD2	PU61178	SHIELD PLATE	

#△ REF No.	PART No.	PART NAME, DESCRIPTION
TP401	PU57545	TEST PIN, X13
CN401	PU60910-10	CAP HOUSING
	or PU60727-10	CAP HOUSING
CN402	PU60910-11	CAP HOUSING
	or PU60727-11	CAP HOUSING
CN501	PU58844-3R	CAP HOUSING
CN502	PU58844-8	CAP HOUSING
CN503	PU58844-8	CAP HOUSING
CN504	PU58844-3	CAP HOUSING
CN505	PU58844-2	CAP HOUSING
CN506	PU59555-3	CAP HOUSING
CN509	PU58844-2	CAP HOUSING
CN510	PU58844-3	CAP HOUSING

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TUNER UNIT BOARD ASSEMBLY<07><08><14>

PWBA	PB10392A-01	TUNER UNIT BOARD ASSY, E
PWBA	PB10392B-01	TUNER UNIT BOARD ASSEMBLY, EG
BKT1	PQ33414-1-2	BRACKET 1
BKT2	PQ33415-1-2	BRACKET(2)
BKT3	PQ44749-1-4	BRACKET(3), X2
SCW1	SDST2608Z	SCREW, X2
SLD1	PQ33416	SHIELD CASE

- TUNER IF BOARD ASSEMBLY<07> -

PWBA1	PB10392A1-01	IF BOARD ASSEMBLY
IC1	M51365SP	IC
Q1	2SA1532(C)	TRANSISTOR
Q2	2SC3354	TRANSISTOR
Q3	2SC1317(RS)	TRANSISTOR
Q4	2SA933S(S)	TRANSISTOR
Q5	2SD1819A(RS)	TRANSISTOR
Q6	FMS2	TRANSISTOR
Q7	2SD1819A(RS)	TRANSISTOR
Q8	2SA1532(C)	TRANSISTOR
Q10	2SC3354	TRANSISTOR
Q11	2SC3311A(RS)	TRANSISTOR
Q12	DTC144EU	TRANSISTOR

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
Q13	DTC144EU	TRANSISTOR
Q16	2SK381(C)	FE TRANSISTOR
D1	MTZ10D	ZENER DIODE
D6	DA204U	DIODE
R1	NRSA63J-750N	RESISTOR 75Ω,1/16W
R4	NRSA63J-392N	RESISTOR 3.9KΩ,1/16W
R5	NRSA63J-181N	RESISTOR 180Ω,1/16W
R6	NRSA63J-272N	RESISTOR 2.7KΩ,1/16W
R7	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R8	NRSA63J-681N	RESISTOR 680Ω,1/16W
R10	QRSA08J-471YN	RESISTOR 470Ω,1/10W
R11	NRSA63J-101N	RESISTOR 100Ω,1/16W
R14	NRSA63J-101N	RESISTOR 100Ω,1/16W
R15	QRSA08J-102YN	RESISTOR 1KΩ,1/10W
R17	NRSA63J-562N	RESISTOR 5.6KΩ,1/16W
R18	NRSA63J-332N	RESISTOR 3.3KΩ,1/16W
R19	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R20	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R21	QVZ3518-472	V RESISTOR, RF AGC 4.7KΩ
	or QVZ3523-472	V RESISTOR 4.7KΩ
R22	NRSA63J-824N	RESISTOR 820KΩ,1/16W
R24	NRSA63J-821N	RESISTOR 820Ω,1/16W
R31	NRSA63J-332N	RESISTOR 3.3KΩ,1/16W
R32	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R33	NRSA63J-393N	RESISTOR 39KΩ,1/16W
R34	NRSA63J-470N	RESISTOR 47Ω,1/16W
R35	NRSA63J-561N	RESISTOR 560Ω,1/16W
R36	NRSA63J-561N	RESISTOR 560Ω,1/16W
R37	NRSA63J-121N	RESISTOR 120Ω,1/16W
R38	NRSA63J-182N	RESISTOR 1.8KΩ,1/16W
R39	QRSA08J-272YN	RESISTOR 2.7KΩ,1/10W
R40	QVZ3518-103	V RESISTOR, COLOR LEVEL 10KΩ
R45	NRSA63J-471N	RESISTOR 470Ω,1/16W
R46	NRSA63J-104N	RESISTOR 100KΩ,1/16W
R47	NRSA63J-153N	RESISTOR 15KΩ,1/16W
R48	NRSA63J-392N	RESISTOR 3.9KΩ,1/16W
R49	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R50	NRSA63J-821N	RESISTOR 820Ω,1/16W
R51	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R52	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R53	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R54	NRSA63J-822N	RESISTOR 8.2KΩ,1/16W
R57	NRSA63J-153N	RESISTOR 15KΩ,1/16W
R62	NRSA63J-392N	RESISTOR 3.9KΩ,1/16W
R64	NRSA63J-182N	RESISTOR 1.8KΩ,1/16W
R65	QRSA08J-221Y	RESISTOR 220Ω,1/10W
R66	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R70	NRSA63J-220N	RESISTOR 22Ω,1/16W
R71	NRSA63J-681N	RESISTOR 680Ω,1/16W
R72	QRSA08J-560YN	RESISTOR 56Ω,1/10W
R73	NRSA63J-331N	RESISTOR 330Ω,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
R84	NRSA63J-393N	RESISTOR 39KΩ,1/16W
R85	NRSA63J-752N	RESISTOR 7.5KΩ,1/16W
R87	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R92	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R93	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R94	QRSA08J-331YN	RESISTOR 330Ω,1/10W
R95	NRSA63J-680N	RESISTOR 68Ω,1/16W
R99	NRSA63J-105N	RESISTOR 1MΩ,1/16W
C1	NCS31HJ-100A	CAPACITOR 10PF,50V
C2	NCT06CH-7R0A	CAPACITOR 7PF
C3	QCTA1RH-101	CAPACITOR 100PF
C4	NCT06CH-5R0A	CAPACITOR 5PF
C5	NCB31HK-102A	CAPACITOR 0.001μF,50V
C7	NCB31HK-102A	CAPACITOR 0.001μF,50V
C8	NCB31HK-102A	CAPACITOR 0.001μF,50V
C9	NCB31HK-222A	CAPACITOR 0.0022μF,50V
C10	QEKF1CM-107	E CAPACITOR 100μF,16V
C11	NCF31HZ-103A	CAPACITOR 0.01μF,50V
C13	NCB31HK-222A	CAPACITOR 0.0022μF,50V
C14	PU57601-474ME	E CAPACITOR 0.47μF
C15	QEKF1CM-336	E CAPACITOR 33μF,16V
C16	NCB31HK-222A	CAPACITOR 0.0022μF,50V
C17	QCYA1HK-223	CAPACITOR 0.022μF,50V
C19	NCF31HZ-103A	CAPACITOR 0.01μF,50V
C20	NCB31HK-102A	CAPACITOR 0.001μF,50V
C21	NCS31HJ-101A	CAPACITOR 100PF,50V
C22	QEKF1CM-106	E CAPACITOR 10μF,16V
C24	QEKF1HM-105	E CAPACITOR 1μF,50V
C25	NCB31HK-222A	CAPACITOR 0.0022μF,50V
C26	QFN31HK-222	M CAPACITOR 0.0022μF,50V
C27	QEKF1HM-474	E CAPACITOR 0.47μF,50V
C29	NCS31HJ-470A	CAPACITOR 47PF,50V
C31	QEKF1HM-335	E CAPACITOR 3.3μF,50V
C32	NCF31HZ-103A	CAPACITOR 0.01μF,50V
C33	QEKF1HM-474	E CAPACITOR 0.47μF,50V
C41	NCB31HK-102A	CAPACITOR 0.001μF,50V
C43	NCB31HK-222A	CAPACITOR 0.0022μF,50V
C44	NCB31HK-102A	CAPACITOR 0.001μF,50V
C45	QCYA1HK-102	CAPACITOR 0.001μF,50V
C46	NCB31HK-102A	CAPACITOR 0.001μF,50V
C50	QEKF1CM-336	E CAPACITOR 33μF,16V
C56	QEKF1CM-336	E CAPACITOR 33μF,16V
C63	NCB31HK-102A	CAPACITOR 0.001μF,50V
C64	NCB31HK-391A	CAPACITOR 390PF,50V
L1	PU60025-R82	COIL 0.82μH
L2	PU60025-R56	COIL 0.56μH
L3	PU60025-1R0	COIL 1μH
L4	PU59152-8R2J	COIL 8.2μH
L5	PU59152-220J	COIL 22μH
L6	PU59152-6R8J	COIL 6.8μH
L7	PU59152-R22K	COIL 0.22μH
L9	PU59152-6R8J	COIL 6.8μH

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
L11	PU59152-6R8J	COIL	6.8μH
L12	PU59152-6R8J	COIL	6.8μH
CF1	PU49295-2	N FILTER	
CF4	PU49295	CERAMIC FILTER	
CF7	PEVB0345	C TRAP	
SAW1	PU60804	SAW FILTER	
SAW2	PU60765	SAW FILTER	
T1	PELN0337	COIL	
T2	PU60497	IF.TRANSFORMER, VCO	
T4	PELN0363	COIL, FIRST AUDIO DET	
T5	PU60046	IF.TRANSFORMER, SYNC DET	
T8	PU60259	COIL, BUZZ	
CN1	PU58844-102	CAP HOUSING	
CN2	PU58844-102R	CAP HOUSING	

- TUNER CONTROL BOARD ASSEMBLY<08> -

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA2	PB10392A2-01	TUNER CTL BOARD ASSY, E	
PWBA2	PB10392B2-01	TUNER CTL BOARD ASSY, EG	
⚠ RF1	PU60817-1-1	RF CONVERTER/MIX BOOSTER	
⚠ TNR101	PERF0042	UHF/VHF TUNER, EG	
⚠ TNR101	PERF0043	UHF/VHF TUNER, E	
Q103	2SB810H,J	TRANSISTOR	
Q104	DTC144EU	TRANSISTOR	
Q106	2SC3313CTA	TRANSISTOR	
D101	HZT33-02	ZENER DIODE	
D102	E-452-2-T2	DIODE	
R102	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
R103	QRD161J-153	RESISTOR	15KΩ,1/6W
R108	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
R109	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R130	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R132	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
C101	QEKF1CM-107	E CAPACITOR	100μF,16V
C102	QEKF1HM-225	E CAPACITOR	2.2μF,50V
C104	NCB31HK-102A	CAPACITOR	0.001μF,50V
C105	QCYA1HK-102	CAPACITOR	0.001μF,50V
C106	NCS31HJ-331A	CAPACITOR	330PF,50V
C107	NCS31HJ-471A	CAPACITOR	470PF,50V
C114	QEKF1CM-107	E CAPACITOR	100μF,16V
C123	QEKF1HM-106	E CAPACITOR	10μF,50V
C126	NCB31HK-103A	CAPACITOR	0.01μF,50V
L101	PU59152-R22K	COIL	0.22μH
L102	PU59152-6R8J	COIL	6.8μH
L105	PU59152-1R0J	COIL	1μH
JP1	PEMC0742-006	B TO B CONN	
JP2	PEMC0742-008	B TO B CONN	
JP3	PEMC0742-003	B TO B CONN	
JP4	PEMC0742-003	B TO B CONN	
WR101	PW30401-BB13T	COAXIAL CORD	
	or PW30401-BB13S	COAXIAL CORD	
CN101	PU58844-4	CAP HOUSING	
CN102	PU59555-7	CAP HOUSING	

- DEMODULATOR BOARD ASSEMBLY<14> -

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA3	PB10392A3-01	DEMODULATOR BOARD ASSEMBLY	
IC201	TDA3800GS	IC	
Q201	DTC114EU	TRANSISTOR	
Q202	2SD1292(QR)	TRANSISTOR	
Q203	DTC114EU	TRANSISTOR	
Q204	DTC114EU	TRANSISTOR	
Q205	DTC114EU	TRANSISTOR	
Q206	DTC114EU	TRANSISTOR	
Q207	DTC114EU	TRANSISTOR	
Q208	DTC114EU	TRANSISTOR	
Q209	2SD1450S,T	TRANSISTOR	
	or 2SD1292(QR)	TRANSISTOR	
Q210	2SD1450S,T	TRANSISTOR	
	or 2SD1292(QR)	TRANSISTOR	
Q211	DTA144EU	TRANSISTOR	
D201	1SS133	DIODE	
D202	1SS133	DIODE	
D203	1SS133	DIODE	
D204	1SS133	DIODE	
D206	1SS133	DIODE	
R201	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R202	QVZ3518-103	V RESISTOR, STEREO SEPARATION 10KΩ	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R203	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
R204	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R205	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R206	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R207	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
R208	QRSA08J-154YN	RESISTOR	150KΩ,1/10W
R209	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R210	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
R211	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R212	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R213	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R214	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R215	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R216	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R217	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R221	QVZ3518-332	V RESISTOR, OUTPUT LEVEL(L)	3.3KΩ
R222	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R223	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R224	QVZ3518-332	V RESISTOR, OUTPUT LEVEL(R)	3.3KΩ
R225	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R226	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R240	QRSA08J-101YN	RESISTOR	100Ω,1/10W
C201	QEKF1CM-106	E CAPACITOR	10μF,16V
C202	QFN31HK-392	M CAPACITOR	0.0039μF,50V
C203	QFN31HK-392	M CAPACITOR	0.0039μF,50V
C204	QFN31HK-392	M CAPACITOR	0.0039μF,50V
C205	QEKF1CM-106	E CAPACITOR	10μF,16V
C206	QEKF1CM-106	E CAPACITOR	10μF,16V
C207	QEKF1CM-476	E CAPACITOR	47μF,16V
C208	QCYA1HK-223	CAPACITOR	0.022μF,50V
C209	QCYA1HK-473	CAPACITOR	0.047μF,50V
C210	QFP31HJ-102	M CAPACITOR	0.001μF,50V
C211	QEKF1CM-107	E CAPACITOR	100μF,16V
C212	QCYA1HK-473	CAPACITOR	0.047μF,50V
C213	QEKF1CM-106	E CAPACITOR	10μF,16V
C214	QEKF1CM-106	E CAPACITOR	10μF,16V
C215	QEKF1CM-336	E CAPACITOR	33μF,16V
C216	QEKF1CM-107	E CAPACITOR	100μF,16V
C217	QEKF1HM-105	E CAPACITOR	1μF,50V
C218	QEKF1CM-476	E CAPACITOR	47μF,16V
BPF201	PU58226	BAND PASS FILTER	
CF201	PU52775	CERAMIC FILTER	
CF202	PU52775-2	CERAMIC FILTER	
T201	PU59489	COIL, SECOND AUDIO DET	
T202	PU59490	COIL	
CN201	PU58844-105	CAP HOUSING	
CN202	PU59555-105	CAP HOUSING	
CN203	PU58844-102	CAP HOUSING	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	

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AUDIO UNIT BOARD ASSEMBLY <09>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	PB10395E-01	AUDIO UNIT BOARD ASSY	
IC1	PB20438B	FMA MODULE BOARD ASSY	
IC2	JCP0013	IC	
IC4	M34225M2-110SP	IC	
IC5	M5223P	IC	
Q1	2SC4097(QR)	TRANSISTOR	
Q4	2SC4081(QR)	TRANSISTOR	
Q5	2SC4081(QR)	TRANSISTOR	
Q6	DTA114EU	TRANSISTOR	
⚠ Q10	DTA124EU	TRANSISTOR	
⚠ Q11	DTA124EU	TRANSISTOR	
⚠ Q13	DTA143EU	TRANSISTOR	
Q14	2SC4081(QR)	TRANSISTOR	
Q15	2SC4081(QR)	TRANSISTOR	
Q16	2SC4081(QR)	TRANSISTOR	
Q17	2SC4081(QR)	TRANSISTOR	
Q19	DTC114EU	TRANSISTOR	
Q21	DTA114EU	TRANSISTOR	
Q22	DTA114EU	TRANSISTOR	
Q23	2SC4081(QR)	TRANSISTOR	
Q24	2SC4081(QR)	TRANSISTOR	
Q25	2SC4081(QR)	TRANSISTOR	
Q26	2SC4081(QR)	TRANSISTOR	
Q27	2SC4081(QR)	TRANSISTOR	
Q28	2SA1577(QR)	TRANSISTOR	
Q29	2SC4097(QR)	TRANSISTOR	
D1	DAN202U	DIODE	
D2	DAN202U	DIODE	
D3	DAN202U	DIODE	
D4	DAN202U	DIODE	
D5	DAN202U	DIODE	
D6	DA204U	DIODE	
D7	DA204U	DIODE	
D8	DAN202U	DIODE	
D10	DAN202U	DIODE	
D11	DA204U	DIODE	
D12	HZ2BLL	ZENER DIODE	
D13	HZ2BLL	ZENER DIODE	
D14	1SS133	DIODE	
D16	DAN202U	DIODE	
D17	DAN202U	DIODE	
D21	1SS133	DIODE	
R1	QRSA08J-100YN	RESISTOR	10Ω,1/

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R2	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
⚠	R3	QRSA08J-820YN	RESISTOR	82Ω,1/10W
	R12	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R21	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
	R22	QRSA08J-362YN	RESISTOR	3.6KΩ,1/10W
	R23	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
	R24	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R25	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R26	QRSA08J-0R0YN	RESISTOR	0Ω,1/10W
	R29	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R30	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R31	QRSA08J-4R7YN	RESISTOR	4.7Ω,1/10W
	R33	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R34	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
	R35	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R36	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R37	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R41	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
	R42	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
	R43	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
	R45	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R46	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
	R47	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
	R48	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R49	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R50	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
	R51	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R52	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
	R53	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R54	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R55	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	R56	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R57	QRSA08J-221YN	RESISTOR	220Ω,1/10W
	R58	QRSA08J-0R0YN	RESISTOR	0Ω,1/10W
	R62	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R63	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R64	QRSA08J-823YN	RESISTOR	82KΩ,1/10W
	R65	QRSA08J-680YN	RESISTOR	68Ω,1/10W
	R66	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
	R67	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R68	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
	R69	QRSA08J-680YN	RESISTOR	68Ω,1/10W
	R70	QRSA08J-823YN	RESISTOR	82KΩ,1/10W
	R71	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R72	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R73	QRSA08J-132YN	RESISTOR	1.3KΩ,1/10W
	R74	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R75	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R76	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R77	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R78	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
	R79	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R80	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R81	QRSA08J-333YN	RESISTOR	33KΩ,1/10W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R82	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R83	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R84	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R85	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R86	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R87	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R88	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R91	QRSA08J-0R0YN	RESISTOR	0Ω,1/10W
	R92	QRSA08J-221YN	RESISTOR	220Ω,1/10W
	R93	QRSA08J-0R0YN	RESISTOR	0Ω,1/10W
	R94	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R95	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
	R102	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R103	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
	R106	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
	R108	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R109	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R110	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R111	QRD161J-152	RESISTOR	1.5KΩ,1/6W
	R112	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	C1	QCYA1HK-222	CAPACITOR	0.0022μF,50V
	C2	QCYA1HK-332	CAPACITOR	0.0033μF,50V
	C3	QETC1EM-475	E CAPACITOR	4.7μF,25V
	C4	QCSA1HJ-331	CAPACITOR	330PF,50V
	C5	QFV81HJ-333	TF CAPACITOR	0.033μF,50V
	C6	QETC1CM-106	E CAPACITOR	10μF,16V
	C9	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C10	QETC1AM-336	E CAPACITOR	33μF,10V
	C11	QETC0JM-476	E CAPACITOR	47μF,6.3V
	C21	QE231CM-106ZR	E CAPACITOR	10μF,16V
	C25	QE231CM-106ZR	E CAPACITOR	10μF,16V
	C26	QETC1CM-476	E CAPACITOR	47μF,16V
	C27	QETC1CM-106	E CAPACITOR	10μF,16V
	C28	QETC1CM-106	E CAPACITOR	10μF,16V
	C31	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C32	QETC1EM-475	E CAPACITOR	4.7μF,25V
	C34	QFL81HJ-223	M CAPACITOR	0.022μF,50V
	C35	QCYA1HK-682	CAPACITOR	0.0068μF,50V
	C36	QCYA1HK-153	CAPACITOR	0.015μF,50V
	C37	QCYA1HK-682	CAPACITOR	0.0068μF,50V
	C38	QETC1CM-106	E CAPACITOR	10μF,16V
	C39	QEK61AM-476	E CAPACITOR	47μF,10V
	C40	QE531CM-106ZR	NP E CAPACITOR	10μF,16V
	C41	QETC1CM-106	E CAPACITOR	10μF,16V
	C42	QETC1CM-226	E CAPACITOR	22μF,16V
	C43	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C44	QETC1AM-336	E CAPACITOR	33μF,10V
	C45	QEK60JM-107	E CAPACITOR	100μF,6.3V
	C46	QCSA1HJ-102	CAPACITOR	0.001μF,50V
	C47	QETC1AM-336	E CAPACITOR	33μF,10V
	C48	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C49	QETC1CM-226	E CAPACITOR	22μF,16V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C51	QE531CM-106ZR	NP E CAPACITOR	10μF,16V
C52	QEK61AM-476	E CAPACITOR	47μF,10V
C53	QEK61CM-106	E CAPACITOR	10μF,16V
C54	QETC1CM-476	E CAPACITOR	47μF,16V
C55	QETC1CM-476	E CAPACITOR	47μF,16V
C56	QETC0JM-107	E CAPACITOR	100μF,6.3V
C57	QE231CM-476ZR	E CAPACITOR	47μF,16V
C58	QETC1CM-476	E CAPACITOR	47μF,16V
C59	QCYA1HK-103	CAPACITOR	0.01μF,50V
C60	QCYA1HK-102	CAPACITOR	0.001μF,50V
C61	QCYA1HK-103	CAPACITOR	0.01μF,50V
C62	QETC0JM-107	E CAPACITOR	100μF,6.3V
C63	QETC1CM-336	E CAPACITOR	33μF,16V
C64	QETC1CM-336	E CAPACITOR	33μF,16V
C65	QETC1CM-106	E CAPACITOR	10μF,16V
C66	QETC1HM-105	E CAPACITOR	1μF,50V
C67	QETC1CM-106	E CAPACITOR	10μF,16V
C70	QCYA1HK-102	CAPACITOR	0.001μF,50V
C71	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C72	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C75	QCYA1HK-153	CAPACITOR	0.015μF,50V
C76	QCYA1EK-223	CAPACITOR	0.022μF,25V
L1	PU58308-472J	COIL	4.7mH
L2	PU48530-101J	COIL	100μH
L3	PU48530-101J	COIL	100μH
L5	PU48530-101J	COIL	100μH
BPF1	PU60610	BPF(1.4MHZ)	
BPF2	PU60611	BPF(1.8MHZ)	
⚠ CF1	PEVB0352	C RESONATER	
⚠ T1	PELN0351	OSC TRANSFORMER	
⚠ T2	PELN0340	OSC TRANSFORMER	
SPC1	PQM30029-149	SPACER	
CN1	PU58844-8	CAP HOUSING	
CN2	PU58844-2	CAP HOUSING	
CN3	PU59555-8	CAP HOUSING	
CN4	PU58844-5	CAP HOUSING	
CN5	PU58844-4	CAP HOUSING	
CN6	PU58844-5	CAP HOUSING	
CN7	PU58844-3	CAP HOUSING	
CN8	PEMC0757-115	HOUSING	
CN9	PEMC0757-111	HOUSING	
CN10	PEMC0757-115	HOUSING	
CN11	PEMC0748-110	CAP HOUSING	
CN12	PEMC0748-110	CAP HOUSING	
CN13	PEMC0748-110	CAP HOUSING	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
⚠ CP1	ICP-F10	CIRCUIT PROTECTOR
⚠ CP2	ICP-F10	CIRCUIT PROTECTOR
⚠ CP3	ICP-F10	CIRCUIT PROTECTOR

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VIDEO INTERFACE BOARD ASSEMBLY <10>

PWBA	PB10461A-01	VIDEO INTERFACE BOARD ASSY,
PWBA	PB10461B-01	VIDEO INTERFACE BOARD ASSY,

– I&O SW SECTION –

IC2	LVA522S	IC
	or NJM2234S	IC
IC3	LVA523S	IC
	or NJM2235S	IC
IC5	NJM2243S	IC
IC6	JCP0006	IC
IC8	MC74HC4053N	IC
	or TC74HC4053AP	IC
IC9	MC74HC04AN	IC
	or TC74HC04AP	IC
Q1	DTA114ES	TRANSISTOR
Q2	DTC143ES	TRANSISTOR
Q3	DTA144ES	TRANSISTOR
Q4	2SA854S(QR)	TRANSISTOR
Q5	2SA854S(QR)	TRANSISTOR
Q6	2SA854S(QR)	TRANSISTOR
Q9	2SA1267(YG)-TJK	TRANSISTOR
	or 2SA933S(RS)	TRANSISTOR
⚠ Q11	2SC1741S(QR)	TRANSISTOR
Q12	2SA1267(YG)-TJK	TRANSISTOR
	or 2SA933S(RS)	TRANSISTOR
Q13	2SC3199JK	TRANSISTOR
	or 2SC1740S(QRS)	TRANSISTOR
Q14	DTC144WS	TRANSISTOR
Q15	DTC144WS	TRANSISTOR
Q18	2SC3199-TJK	TRANSISTOR
	or 2SC1740S(QRS)	TRANSISTOR
Q19	2SA1267(YG)-TJK	TRANSISTOR
	or 2SA933S(RS)	TRANSISTOR
Q20	2SA1267(YG)-TJK	TRANSISTOR
	or 2SA933S(RS)	TRANSISTOR
Q21	DTC144WS	TRANSISTOR
Q22	DTC144ES	TRANSISTOR
Q25	DTC144WS	TRANSISTOR
Q27	DTC144WS	TRANSISTOR
Q32	2SB810H,J	TRANSISTOR
Q34	2SC3199-TJK	TRANSISTOR
	or 2SC1740S(QRS)	TRANSISTOR
Q35	2SK381(C)	FE TRANSISTOR

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
Q36	2SA1267(YG)-TJK	TRANSISTOR	
	or 2SA933S(RS)	TRANSISTOR	
Q37	DTC124ES	TRANSISTOR	
Q40	2SA1267(YG)-TJK	TRANSISTOR	
	or 2SA933S(RS)	TRANSISTOR	
Q41	2SA1267(YG)-TJK	TRANSISTOR	
	or 2SA933S(RS)	TRANSISTOR	
Q42	2SA1267(YG)-TJK	TRANSISTOR	
	or 2SA933S(RS)	TRANSISTOR	
Q43	2SC3199-TJK	TRANSISTOR	
	or 2SC1740S(QRS)	TRANSISTOR	
Q44	2SC3199-TJK	TRANSISTOR	
	or 2SC1740S(QRS)	TRANSISTOR	
Q45	2SA1267(YG)-TJK	TRANSISTOR	
	or 2SA933S(RS)	TRANSISTOR	
Q46	2SA1267(YG)-TJK	TRANSISTOR	
	or 2SA933S(RS)	TRANSISTOR	
Q47	DTA144ES	TRANSISTOR	
Q48	DTC124ES	TRANSISTOR	
Q49	DTC124ES	TRANSISTOR	
Q50	DTC144ES	TRANSISTOR	
D2	1SS133	DIODE	
	or MA165	DIODE	
D5	1SS133	DIODE	
	or MA165	DIODE	
D6	1SS133	DIODE	
	or MA165	DIODE	
D7	1SS133	DIODE	
	or MA165	DIODE	
D8	1SS133	DIODE	
	or MA165	DIODE	
D9	MA27TA	DIODE	
D10	MTZ8.2BT-77	ZENER DIODE	
D12	1SS133	DIODE	
	or MA165	DIODE	
D13	1SS133	DIODE	
	or MA165	DIODE	
D14	1SS133	DIODE	
	or MA165	DIODE	
D15	1SS133	DIODE	
	or MA165	DIODE	
D16	1SS133	DIODE	
	or MA165	DIODE	
D17	1SS133	DIODE	
	or MA165	DIODE	
D18	1SS133	DIODE	
	or MA165	DIODE	
D19	1SS133	DIODE	
	or MA165	DIODE	
D24	1SS133	DIODE	
	or MA165	DIODE	
D29	1SS133	DIODE	
	or MA165	DIODE	
D30	1SS133	DIODE	
	or MA165	DIODE	
D31	1SS133	DIODE	
	or MA165	DIODE	
D32	1SS133	DIODE	
	or MA165	DIODE	
D37	1SS133	DIODE	
	or MA165	DIODE	
D41	1SS133	DIODE	
	or MA165	DIODE	
D42	1SS133	DIODE	
	or MA165	DIODE	
D43	1SS133	DIODE	
	or MA165	DIODE	
D45	1SS133	DIODE	
	or MA165	DIODE	
D46	1SS133	DIODE	
	or MA165	DIODE	
D47	1SS133	DIODE	
	or MA165	DIODE	
D48	1SS133	DIODE	
	or MA165	DIODE	
D49	1SS133	DIODE	
	or MA165	DIODE	
D50	1SS133	DIODE	
	or MA165	DIODE	
D51	1SS133	DIODE	
	or MA165	DIODE	
D52	1SS133	DIODE	
	or MA165	DIODE	
D53	1SS133	DIODE	
	or MA165	DIODE	
D54	1SS133	DIODE	
	or MA165	DIODE	
R1	QRD161J-750	RESISTOR	75Ω,1/6W
R2	QRD161J-750	RESISTOR	75Ω,1/6W
R7	QRD161J-105	RESISTOR	1MΩ,1/6W
R8	QRD161J-750	RESISTOR	75Ω,1/6W
R9	QRD161J-750	RESISTOR	75Ω,1/6W
R10	QRD123J-391SX	RESISTOR	390Ω,1/2W
R11	QRD122J-391	RESISTOR	390Ω,1/2W
R12	QRD122J-391	RESISTOR	390Ω,1/2W
R15	QRD161J-750	RESISTOR	75Ω,1/6W
R16	QRD161J-750	RESISTOR	75Ω,1/6W
R17	QRD161J-750	RESISTOR	75Ω,1/6W
R20	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R21	QRD161J-102	RESISTOR	1KΩ,1/6W
R22	QRD161J-102	RESISTOR	1KΩ,1/6W
R23	QRD161J-123	RESISTOR	12KΩ,1/6W
R27	QRD161J-271	RESISTOR	270Ω,1/6W
R29	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R30	QRD161J-182	RESISTOR	1.8KΩ,1/6W
R31	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R32	QRD161J-102	RESISTOR	1KΩ,1/6W
R33	QRD161J-102	RESISTOR	1KΩ,1/6W
R34	QRD161J-102	RESISTOR	1KΩ,1/6W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R35	QRD162J-152	RESISTOR	1.5KΩ,1/6W
R36	QVZ3523-103AZ	V RESISTOR, EE LEVEL	10KΩ
	or QVZ3518-103	V RESISTOR	10KΩ
	or QVZ3518-103AZ	V RESISTOR	10KΩ
	or QVZ3523-103	V RESISTOR	10KΩ
R37	QRD161J-223	RESISTOR	22KΩ,1/6W
R38	QRD161J-223	RESISTOR	22KΩ,1/6W
R39	QRD161J-223	RESISTOR	22KΩ,1/6W
R40	QRD161J-223	RESISTOR	22KΩ,1/6W
R41	QRD161J-181	RESISTOR	180Ω,1/6W
R42	QRD161J-223	RESISTOR	22KΩ,1/6W
R43	QRD161J-183	RESISTOR	18KΩ,1/6W
R44	QRD161J-223	RESISTOR	22KΩ,1/6W
R45	QRD161J-183	RESISTOR	18KΩ,1/6W
R47	QRD161J-223	RESISTOR	22KΩ,1/6W
R48	QRD161J-104	RESISTOR	100KΩ,1/6W
R49	QRD161J-103	RESISTOR	10KΩ,1/6W
R50	QRD161J-103	RESISTOR	10KΩ,1/6W
R51	QRD161J-104	RESISTOR	100KΩ,1/6W
R52	QRD161J-223	RESISTOR	22KΩ,1/6W
R54	QRD161J-104	RESISTOR	100KΩ,1/6W
R62	QRD161J-104	RESISTOR	100KΩ,1/6W
R63	QVZ3523-333AZ	V RESISTOR, PB Y LEVEL(SVHS)	33KΩ
	or QVZ3523-333	V RESISTOR	33KΩ
	or QVZ3518-333AZ	V RESISTOR	33KΩ
	or QVZ3518-333	V RESISTOR	33KΩ
R64	QVZ3523-332AZ	V RESISTOR, PB Y LEVEL(VHS)	3.3KΩ
	or QVZ3518-332	V RESISTOR	3.3KΩ
	or QVZ3523-332	V RESISTOR	3.3KΩ
	or QVZ3518-332AZ	V RESISTOR	3.3KΩ
R66	QRD161J-102	RESISTOR	1KΩ,1/6W
R67	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R68	QRD161J-122	RESISTOR	1.2KΩ,1/6W
R71	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R77	QRD161J-123	RESISTOR	12KΩ,1/6W
R78	QRD161J-103	RESISTOR	10KΩ,1/6W
R80	QRD161J-223	RESISTOR	22KΩ,1/6W
R88	QRD161J-393	RESISTOR	39KΩ,1/6W
R89	QRD161J-272	RESISTOR	2.7KΩ,1/6W
R93	QRD161J-101	RESISTOR	100Ω,1/6W
R94	QRD161J-122	RESISTOR	1.2KΩ,1/6W
R95	QRD161J-112	RESISTOR	1.1KΩ,1/6W
R96	QRD161J-102	RESISTOR	1KΩ,1/6W
R97	QRD161J-103	RESISTOR	10KΩ,1/6W
R98	QRD161J-223	RESISTOR	22KΩ,1/6W
R99	QRD161J-682	RESISTOR	6.8KΩ,1/6W
R100	QRD161J-333	RESISTOR	33KΩ,1/6W
R101	QRD161J-101	RESISTOR	100Ω,1/6W
R102	QRD161J-152	RESISTOR	1.5KΩ,1/6W
R103	QRD161J-393	RESISTOR	39KΩ,1/6W
R105	QRD161J-221	RESISTOR	220Ω,1/6W
R107	QRD161J-101	RESISTOR	100Ω,1/6W
R108	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R109	QRD161J-123	RESISTOR	12KΩ,1/6W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R111	QRD161J-472	RESISTOR	4.7KΩ,
R112	QRD161J-821	RESISTOR	820Ω,
R113	QRD161J-273	RESISTOR	27KΩ,
R114	QRD161J-392	RESISTOR	3.9KΩ,
R117	QRD161J-152	RESISTOR	1.5KΩ,
R118	QRD161J-242	RESISTOR	2.4KΩ,
R119	QRD161J-101	RESISTOR	100Ω,
R120	QRD161J-182	RESISTOR	1.8KΩ,
R121	QRD161J-151	RESISTOR	150Ω,
R122	QRD161J-473	RESISTOR	47KΩ,
R123	QRD161J-333	RESISTOR	33KΩ,
R124	QRD161J-103	RESISTOR	10KΩ,
R125	QRD161J-223	RESISTOR	22KΩ,
R126	QRD161J-472	RESISTOR	4.7KΩ,
R127	QRD161J-103	RESISTOR	10KΩ,
C1	QCVB1CN-103	CAPACITOR	0.01µF
C4	QCVB1CN-103	CAPACITOR	0.01µF
C5	QCVB1CN-103	CAPACITOR	0.01µF
C7	QCVB1CN-103	CAPACITOR	0.01µF
C8	QENC1HM-105	NP E CAPACITOR	1µF
	or QEN61HM-105	NP E CAPACITOR	1µF
C9	QCVB1CN-103	CAPACITOR	0.01µF
C10	QETC1CM-106	E CAPACITOR	10µF
C11	QETC1CM-106	E CAPACITOR	10µF
C18	QEK61CM-476	E CAPACITOR	47µF
C19	QCVB1CN-103	CAPACITOR	0.01µF
C20	QETC0JM-477	E CAPACITOR	470µF
C21	QCVB1CN-103	CAPACITOR	0.01µF
C22	QETC0JM-477	E CAPACITOR	470µF
C26	QEK61CM-476	E CAPACITOR	47µF
C27	QETC1AM-226	E CAPACITOR	22µF
C28	QCVB1CN-103	CAPACITOR	0.01µF
C29	QETC1EM-106	E CAPACITOR	10µF
C30	QETC1EM-106	E CAPACITOR	10µF
C33	QETC0JM-476	E CAPACITOR	47µF
C34	QETC1HM-105	E CAPACITOR	1µF
C35	QCVB1CN-103	CAPACITOR	0.01µF
C36	QETC1CM-106	E CAPACITOR	10µF
C37	QETC1EM-335	E CAPACITOR	3.3µF
C38	QETC1HM-474	E CAPACITOR	0.47µF
C39	QETC1HM-224	E CAPACITOR	0.22µF
C40	QFN31HJ-682	M CAPACITOR	0.0068µF
C41	QETC0JM-107	E CAPACITOR	100µF
C42	QCVB1CN-103	CAPACITOR	0.01µF
C43	QETC1HM-474	E CAPACITOR	0.47µF
C44	QETC1HM-474	E CAPACITOR	0.47µF
C45	QETC1HM-105	E CAPACITOR	1µF
C46	QFN31HJ-682	M CAPACITOR	0.0068µF
C47	QETC1HM-474	E CAPACITOR	0.47µF
C48	QETC1HM-474	E CAPACITOR	0.47µF
C49	QCVB1CN-103	CAPACITOR	0.01µF
C50	QCVB1CN-103	CAPACITOR	0.01µF
C51	QCVB1CN-103	CAPACITOR	0.01µF
C52	QETC1HM-474	E CAPACITOR	0.47µF

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C53	QETC1HM-474	E CAPACITOR	0.47μF,50V
C54	QCVB1CN-103	CAPACITOR	0.01μF,16V
C57	QCVB1CN-103	CAPACITOR	0.01μF,16V
C58	QETC1CM-476	E CAPACITOR	47μF,16V
C62	QCVB1CN-103	CAPACITOR	0.01μF,16V
C63	QCVB1CN-103	CAPACITOR	0.01μF,16V
C66	QEK60JM-476	E CAPACITOR	47μF,6.3V
C67	QEK60JM-476	E CAPACITOR	47μF,6.3V
C68	QETC0JM-476	E CAPACITOR	47μF,6.3V
C70	QCVB1CN-103	CAPACITOR	0.01μF,16V
C71	QCVB1CN-103	CAPACITOR	0.01μF,16V
C73	QETC1CM-476	E CAPACITOR	47μF,16V
C75	QCVB1CN-103	CAPACITOR	0.01μF,16V
C76	QCVB1CN-103	CAPACITOR	0.01μF,16V
C77	QCVB1CN-103	CAPACITOR	0.01μF,16V
C81	QETC1HM-474	E CAPACITOR	0.47μF,50V
C83	QCVB1CN-103	CAPACITOR	0.01μF,16V
C84	QCVB1CN-103	CAPACITOR	0.01μF,16V
C86	QCVB1CN-103	CAPACITOR	0.01μF,16V
C87	QCVB1CN-103	CAPACITOR	0.01μF,16V
C92	QCSB1HJ-330	CAPACITOR	33PF,50V
C93	QCSB1HJ-220	CAPACITOR	22PF,50V
C94	QCVB1CN-103	CAPACITOR	0.01μF,16V
C95	QETC1CM-476	E CAPACITOR	47μF,16V
C96	QEK61CM-476	E CAPACITOR	47μF,16V
C99	QCVB1CN-103	CAPACITOR	0.01μF,16V
C100	QEN61HM-335	NP E CAPACITOR	3.3μF,50V
	or QENC1HM-335	NP E CAPACITOR	3.3μF,50V
C101	QCVB1CN-103	CAPACITOR	0.01μF,16V
C102	QCSB1HJ-6R8	CAPACITOR	6.8PF,50V
C105	QER61EM-475	E CAPACITOR	4.7μF,25V
C106	QETC0JM-107	E CAPACITOR	100μF,6.3V
L1	PU48530-101K	COIL	100μH
L2	PU48530-101K	COIL	100μH
L3	PU48530-101K	COIL	100μH
L5	PU48530-101K	COIL	100μH
L6	PU59153-101K	COIL	100μH
L7	PU48530-101K	COIL	100μH
L11	PU48530-101K	COIL	100μH
L12	PU59988-100J	COIL	10μH
L13	PU48530-101K	COIL	100μH
L14	PU48530-101K	COIL	100μH
L15	PU59988-100J	COIL	10μH
L16	PU48530-101K	COIL	100μH
EQ1	PU54838	EQUALIZER	
LC1	PU60813	LCF	
TP6	PU57545	TEST PIN,X7	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
CN1	PU59555-4	CAP HOUSING	
CN2	PU58844-2	CAP HOUSING	
CN3	PU58844-6	CAP HOUSING	
CN4	PU58844-3	CAP HOUSING	
CN5	PEMC0749-110	CAP HOUSING	
CN6	PEMC0749-110	CAP HOUSING	
CN7	PEMC0749-110	CAP HOUSING	

– Y/C SEPARATOR SECTION –

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
IC201	VC2063S	IC	
Q201	2SA1267(YG)-TJK	TRANSISTOR	
	or 2SA933S(RS)	TRANSISTOR	
Q202	2SC3199-TJK	TRANSISTOR	
	or 2SC1740S(QRS)	TRANSISTOR	
Q203	2SC3199-TJK	TRANSISTOR	
	or 2SC1740S(QRS)	TRANSISTOR	
Q204	2SA1267(YG)-TJK	TRANSISTOR	
	or 2SA933S(RS)	TRANSISTOR	
Q205	2SA1267(YG)-TJK	TRANSISTOR	
	or 2SA933S(RS)	TRANSISTOR	
Q206	2SA1267(YG)-TJK	TRANSISTOR	
	or 2SA933S(RS)	TRANSISTOR	
Q207	2SC3199-TJK	TRANSISTOR	
	or 2SC1740S(QRS)	TRANSISTOR	
R201	QRD161J-102	RESISTOR	1KΩ,1/6W
R202	QRD161J-391	RESISTOR	390Ω,1/6W
R203	QRD161J-392	RESISTOR	3.9KΩ,1/6W
R204	QRD161J-101	RESISTOR	100Ω,1/6W
R205	QRD161J-331	RESISTOR	330Ω,1/6W
R206	QVZ3523-151A	V RESISTOR, Y COMB GAIN	150Ω
	or QVZ3523-151	V RESISTOR	150Ω
	or QVZ3518-151A	V RESISTOR	150Ω
	or QVZ3518-151	V RESISTOR	150Ω
R207	QRD161J-102	RESISTOR	1KΩ,1/6W
R208	QRD161J-471	RESISTOR	470Ω,1/6W
R209	QRD161J-621	RESISTOR	620Ω,1/6W
R210	QRD161J-272	RESISTOR	2.7KΩ,1/6W
R211	QRD161J-391	RESISTOR	390Ω,1/6W
R212	QRD161J-392	RESISTOR	3.9KΩ,1/6W
R213	ERT-D2FGL102S	THERMISTOR	
R214	QRD161J-223	RESISTOR	22KΩ,1/6W
R215	QVZ3523-223A	V RESISTOR, Y COMB ADJ	22KΩ
	or QVZ3518-223A	V RESISTOR	22KΩ
	or QVZ3518-223	V RESISTOR	22KΩ
	or QVZ3523-223	V RESISTOR	22KΩ
R216	QRD161J-272	RESISTOR	2.7KΩ,1/6W
R217	QRD161J-122	RESISTOR	1.2KΩ,1/6W
R218	ERT-D2FHL332S	THERMISTOR	
R219	QVZ3523-472A	V RESISTOR, Y COMB ADJ	4.7KΩ
	or QVZ3518-472	V RESISTOR	4.7KΩ
	or QVZ3523-472	V RESISTOR	4.7KΩ
	or QVZ3518-472A	V RESISTOR	4.7KΩ
R220	QRD161J-102	RESISTOR	1KΩ,1/6W
R221	QRD161J-102	RESISTOR	1KΩ,1/6W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R222	QRD161J-102	RESISTOR	1KΩ,1/6W
R223	QRD161J-181	RESISTOR	180Ω,1/6W
R224	QRD161J-821	RESISTOR	820Ω,1/6W
R225	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R226	QRD161J-102	RESISTOR	1KΩ,1/6W
R227	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R228	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R229	QRD161J-561	RESISTOR	560Ω,1/6W
R230	QRD161J-561	RESISTOR	560Ω,1/6W
R231	QVZ3523-471A	V RESISTOR, Y COMB ADJ	470Ω
	or QVZ3518-471	V RESISTOR	470Ω
	or QVZ3518-471A	V RESISTOR	470Ω
	or QVZ3523-471	V RESISTOR	470Ω
R232	QRD161J-391	RESISTOR	390Ω,1/6W
R233	QRD161J-391	RESISTOR	390Ω,1/6W
R234	QVZ3523-473A	V RESISTOR, 2H DELAY COLOR	47KΩ
	or QVZ3518-473A	V RESISTOR	47KΩ
	or QVZ3523-473	V RESISTOR	47KΩ
	or QVZ3518-473	V RESISTOR	47KΩ
R235	QRD161J-223	RESISTOR	22KΩ,1/6W
R236	QRD161J-391	RESISTOR	390Ω,1/6W
R237	QRD161J-391	RESISTOR	390Ω,1/6W
R238	QVZ3523-473A	V RESISTOR, 4H DELAY COLOR	47KΩ
	or QVZ3518-473	V RESISTOR	47KΩ
	or QVZ3523-473	V RESISTOR	47KΩ
	or QVZ3518-473A	V RESISTOR	47KΩ
R239	QRD161J-223	RESISTOR	22KΩ,1/6W
C201	QETC1CM-476	E CAPACITOR	47μF,16V
C202	QCVB1CN-103	CAPACITOR	0.01μF,16V
C203	QCBB1HJ-101	CAPACITOR	100PF,50V
C204	QCVB1CN-103	CAPACITOR	0.01μF,16V
C205	QCVB1CN-103	CAPACITOR	0.01μF,16V
C206	QCVB1CN-103	CAPACITOR	0.01μF,16V
C207	QCVB1CN-103	CAPACITOR	0.01μF,16V
C208	QCVB1CN-103	CAPACITOR	0.01μF,16V
C209	QCVB1CN-103	CAPACITOR	0.01μF,16V
C210	QCVB1CN-103	CAPACITOR	0.01μF,16V
C211	QCT25CH-470	CAPACITOR	47PF
C212	QCVB1CN-103	CAPACITOR	0.01μF,16V
C213	QCVB1CN-103	CAPACITOR	0.01μF,16V
C214	QCVB1CN-103	CAPACITOR	0.01μF,16V
C215	QCBB1HJ-101	CAPACITOR	100PF,50V
C216	QCVB1CN-103	CAPACITOR	0.01μF,16V
C217	QCBB1HJ-101	CAPACITOR	100PF,50V
C218	QCVB1CN-103	CAPACITOR	0.01μF,16V
C219	QETC1HM-105	E CAPACITOR	1μF,50V
C220	QETC0JM-476	E CAPACITOR	47μF,6.3V
C221	QCVB1CN-103	CAPACITOR	0.01μF,16V
C224	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C225	QETC1CM-476	E CAPACITOR	47μF,16V
C226	QCVB1CN-103	CAPACITOR	0.01μF,16V
L201	PU48530-101K	COIL	100μH
L202	PU60165-8R2G	COIL	8.2μH
L203	PU60814	COIL, 2H DELAY COLOR	
L204	PU60165-8R2G	COIL	8.2μH

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
L205	PU60814	COIL, 4H DELAY COLOR	
L206	PU48530-101K	COIL	100μH
EQ201	PU60809	EQUALIZER	
EQ202	PU60810	EQUALIZER	
BPF201	PU60921	BAND PASS FILTER	
BPF202	PU60808-2	BAND PASS FILTER	
DL201	PU60815	2H DELAY LINE	
TP225	PU57545	TEST PIN,X6	

- TERMINAL SECTION -

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R601	QRD161J-561	RESISTOR	560Ω,1/6W
R602	QRD161J-561	RESISTOR	560Ω,1/6W
C601	QCBC1HJ-102	CAPACITOR, EG	0.001μF,50V
C602	QCBC1HJ-102	CAPACITOR, EG	0.001μF,50V
LC601	PU59885-102	N FILTER, EG	
LC602	PU59885-102	N FILTER, EG	
K602	PU60281-5	FERRITE BEADS, EG	
SCW1	SDSF3010Z	SCREW	
SKT1	PEMC0766	RGB21PIN SOCKET	
⚠ TB1	PQ11010-2	TERMINAL BOARD(1), E	
⚠ TB1	PQ11010	TERMINAL BOARD(1), EG	
JA1,2	PU61048	S.CONNECTION, X2	
CN602	PU58844-6	CAP HOUSING	

- SKEW JUMP SECTION -

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
IC701	LVA523S	IC	
	or NJM2235S	IC	
⚠ IC702	MSM6989RS	IC	
Q701	2SC3199-TJK	TRANSISTOR	
	or 2SC1740S(QRS)	TRANSISTOR	
Q702	2SC3199-TJK	TRANSISTOR	
	or 2SC1740S(QRS)	TRANSISTOR	
Q703	2SC3199-TJK	TRANSISTOR	
	or 2SC1740S(QRS)	TRANSISTOR	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
Q704	2SC3199-TJK	TRANSISTOR	
	or 2SC1740S(QRS)	TRANSISTOR	
Q705	2SC3199-TJK	TRANSISTOR	
	or 2SC1740S(QRS)	TRANSISTOR	
Q706	2SA1267(YG)-TJK	TRANSISTOR	
	or 2SA933S(RS)	TRANSISTOR	
R701	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R702	QRD161J-103	RESISTOR	10KΩ,1/6W
R703	QRD161J-103	RESISTOR	10KΩ,1/6W
R704	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R706	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R707	QRD161J-102	RESISTOR	1KΩ,1/6W
R708	QRD161J-221	RESISTOR	220Ω,1/6W
R709	QVZ3523-682A	V RESISTOR, 0.5H DELAY V.LEVEL 6.8KΩ	
	or QVZ3523-682	V RESISTOR	6.8KΩ
	or QVZ3518-682A	V RESISTOR	6.8KΩ
	or QVZ3518-682	V RESISTOR	6.8KΩ
R710	QRD161J-392	RESISTOR	3.9KΩ,1/6W
R711	QRD161J-103	RESISTOR	10KΩ,1/6W
R712	QRD161J-122	RESISTOR	1.2KΩ,1/6W
R713	QRD161J-102	RESISTOR	1KΩ,1/6W
R715	QRD161J-821	RESISTOR	820Ω,1/6W
R716	ERS-A39J-102T	THERMISTOR	
R717	QRD161J-103	RESISTOR	10KΩ,1/6W
R718	QRD161J-102	RESISTOR	1KΩ,1/6W
R721	QRD161J-182	RESISTOR	1.8KΩ,1/6W
R722	QRD161J-101	RESISTOR	100Ω,1/6W
C701	QCSB1HJ-220	CAPACITOR	22PF,50V
C702	QETC1CM-106	E CAPACITOR	10µF,16V
C703	QETC1HM-105	E CAPACITOR	1µF,50V
C704	QETC1HM-225	E CAPACITOR	2.2µF,50V
C705	QETC0JM-476	E CAPACITOR	47µF,6.3V
C707	QCVB1CN-103	CAPACITOR	0.01µF,16V
C708	QEN61CM-106	NP E CAPACITOR	10µF,16V
	or QENC1CM-106	NP E CAPACITOR	10µF,16V
C709	QCSB1HJ-270	CAPACITOR	27PF,50V
C710	QCSB1HJ-330	CAPACITOR	33PF,50V
C711	QETC1CM-476	E CAPACITOR	47µF,16V
C712	QCVB1CN-103	CAPACITOR	0.01µF,16V
C713	QETC0JM-476	E CAPACITOR	47µF,6.3V
C714	QCVB1CN-103	CAPACITOR	0.01µF,16V
C715	QETC1EM-475	E CAPACITOR	4.7µF,25V
C716	QETC1HM-334	E CAPACITOR	0.33µF,50V
C717	QCVB1CN-103	CAPACITOR	0.01µF,16V
C718	QCVB1CN-103	CAPACITOR	0.01µF,16V
C719	QCSB1HJ-180	CAPACITOR	18PF,50V
C720	QCSB1HJ-100	CAPACITOR	10PF,50V
C722	QCVB1CN-103	CAPACITOR	0.01µF,16V
C723	QCVB1CN-103	CAPACITOR	0.01µF,16V
C724	QCSB1HJ-470	CAPACITOR	47PF,50V
C725	QCVB1CN-103	CAPACITOR	0.01µF,16V
C726	QCBB1HJ-102	CAPACITOR	0.001µF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
L701	PU59988-560J	COIL	56µH
L702	PU59988-560J	COIL	56µH
L703	PU59988-180J	COIL	18µH
L706	PU59153-101K	COIL	100µH
L707	PU48530-101K	COIL	100µH
L708	PU48530-101K	COIL	100µH
SLD1	PQ42994	SHIELD PLATE	
SLD2	PQ42995	SHIELD CASE	
SLD3	PQ42996	SHIELD COVER	

– ON-SCREEN SECTION –

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
IC901	M50552-148SP	IC	
IC951	M52684AP	IC	
IC952	BU4013B	IC	
	or TC4013BP	IC	
Q901	DTA114ES	TRANSISTOR	
Q902	DTA114ES	TRANSISTOR	
Q951	DTC114ES	TRANSISTOR	
R901	QRD161J-471	RESISTOR	470Ω,1/6W
R902	QRD161J-103	RESISTOR	10KΩ,1/6W
R903	QRD161J-681	RESISTOR	680Ω,1/6W
R904	QRD161J-103	RESISTOR	10KΩ,1/6W
R905	QRD161J-102	RESISTOR	1KΩ,1/6W
R906	QRD161J-471	RESISTOR	470Ω,1/6W
R907	QRD161J-471	RESISTOR	470Ω,1/6W
R908	QRD161J-392	RESISTOR	3.9KΩ,1/6W
R909	QRD161J-752	RESISTOR	7.5KΩ,1/6W
R911	QRD161J-622	RESISTOR	6.2KΩ,1/6W
R912	QRD161J-242	RESISTOR	2.4KΩ,1/6W
R916	QRD161J-123	RESISTOR	12KΩ,1/6W
R917	QRD161J-123	RESISTOR	12KΩ,1/6W
R918	QRD161J-103	RESISTOR	10KΩ,1/6W
R919	QRD161J-102	RESISTOR	1KΩ,1/6W
R920	QRD161J-105	RESISTOR	1MΩ,1/6W
R926	QRD161J-102	RESISTOR	1KΩ,1/6W
R928	QRD161J-471	RESISTOR	470Ω,1/6W
R951	QRD161J-103	RESISTOR	10KΩ,1/6W
R952	QRD161J-103	RESISTOR	10KΩ,1/6W
R953	QRD161J-271	RESISTOR	270Ω,1/6W
R954	QRD161J-152	RESISTOR	1.5KΩ,1/6W
R955	QRD161J-154	RESISTOR	150KΩ,1/6W
R956	QRD161J-473	RESISTOR	47KΩ,1/6W
C903	QETC1CM-106	E CAPACITOR	10µF,16V
C904	QCVB1CM-103	CAPACITOR	0.01µF,16V
C905	QAT3123-450	TRIM CAP, DOT CLOCK	45PF
C906	QCSB1HJ-220	CAPACITOR	22PF,50V
C907	QCSB1HJ-330	CAPACITOR	33PF,50V
C908	QCSB1HJ-360	CAPACITOR	36PF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C909	QCVB1CN-103	CAPACITOR	0.01μF,16V
C910	QCSB1HJ-270	CAPACITOR	27PF,50V
C911	QCVB1CN-103	CAPACITOR	0.01μF,16V
C912	QCSB1HJ-270	CAPACITOR	27PF,50V
C913	QCVB1CN-103	CAPACITOR	0.01μF,16V
C914	QETC1CM-106	E CAPACITOR	10μF,16V
C915	QCT25CH-150	CAPACITOR	15PF
C916	QAT3123-200	TRIMMER CAPACITOR, BURST CLOCK	20PF
C917	QCT25CH-5R0	CAPACITOR	5PF
C921	QCBB1HJ-331	CAPACITOR	330PF,50V
C951	QFN31HJ-222	M CAPACITOR	0.0022μF,50V
C952	QCSB1HJ-220	CAPACITOR	22PF,50V
C953	QCXB1CN-152	CAPACITOR	0.0015μF,16V
C954	QCVB1CN-103	CAPACITOR	0.01μF,16V
C955	QER61HM-105	E CAPACITOR	1μF,50V
C956	QETC1HM-106	E CAPACITOR	10μF,50V
C957	QCVB1CN-103	CAPACITOR	0.01μF,16V
C958	QCVB1CN-103	CAPACITOR	0.01μF,16V
C959	QETC1HM-335	E CAPACITOR	3.3μF,50V
L901	PU54223-101K	COIL	100μH
L902	PU59152-220J	COIL	22μH
L903	PU59152-8R2J	COIL	8.2μH
L904	PU59152-150J	COIL	15μH
L905	PU59152-220J	COIL	22μH
L906	PU59152-220J	COIL	22μH
⚠ CF951	PU60086	RESONATOR	
⚠ X901	PU60908	CRYSTAL RESONATOR	
TP901	PU57545	TEST PIN	
TP902	PU57545	TEST PIN	
CN901	PU59555-7	CAP HOUSING	

- OTHER SECTION -

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R301	QVZ3518-332	V RESISTOR, EE BALANCE	3.3KΩ
R302	QVZ3518-473	V RESISTOR, EE LEVEL	47KΩ
R303	QVZ3518-471	V RESISTOR, PB LEVEL	470Ω
R304	QVZ3518-473	V RESISTOR, BIAS ADJ	47KΩ
R305	QRD161J-100	RESISTOR	10Ω,1/6W
R427	QVZ3518-474A	V RESISTOR, SP PB SW POINT	470KΩ
	or QVZ3523-474A	V RESISTOR	470KΩ
	or QVZ3523-474	V RESISTOR	470KΩ
	or QVZ3518-474	V RESISTOR	470KΩ
HD1	PU60521	PWB HOLDER(A), X2	
HD2	PU60522	PWB HOLDER(B), X2	
SLD1	PQ42995	SHIELD CASE	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
SPC1	PU60010-2	SPACER, X5
TP331	PU57545	TEST PIN,X3 (331,332,334)
TP401	PU57545	TEST PIN, X3 (TP401,411,453)

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A/C HEAD BOARD ASSEMBLY <12>

PWB1	PB40046-01-02	A/C HEAD BOARD
CN1	PU58844-104	CAP HOUSING
CN2	PU58844-103	CAP HOUSING

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VIDEO SUB BOARD ASSEMBLY <15>

PWBA	PB30147A	VIDEO SUB BOARD ASSEMBLY	
IC1	BU4030B	IC	
	or UPD4030BC	IC	
IC2	MC74HC4538N	IC	
	or TC74HC4538AP	IC	
IC3	MC14066BCP	IC	
	or UPD4066BC	IC	
Q1	DTC144WS	TRANSISTOR	
D1	1SS133	DIODE	
	or MA165	DIODE	
D2	1SS133	DIODE	
	or MA165	DIODE	
R1	QRD161J-683	RESISTOR	68KΩ
R2	QRD161J-103	RESISTOR	10KΩ
R3	QRD161J-103	RESISTOR	10KΩ
R4	QRD161J-512	RESISTOR	5.1KΩ
R5	QRD161J-432	RESISTOR	4.3KΩ
R6	QRD161J-104	RESISTOR	100KΩ
R7	QRD161J-101	RESISTOR	100Ω
C1	QCBB1HJ-101	CAPACITOR	100P
C2	QCBB1HJ-121	CAPACITOR	120P

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C3	QFN31HJ-102	M CAPACITOR	0.001μF,50V
C4	QCC31CK-104	CAPACITOR	0.1μF,16V
C5	QCC31CK-104	CAPACITOR	0.1μF,16V
C6	QCC31CK-104	CAPACITOR	0.1μF,16V
C8	QCBB1HJ-221	CAPACITOR	220PF,50V
CN1	PU58844-6	CAP HOUSING	
CN2	PU58844-4	CAP HOUSING	

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TIMER BOARD ASSEMBLY <20>

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	PB20494B-01	TIMER BOARD ASSY, EG	
PWBA	PB20494A-01	TIMER BOARD ASSY, E	
IC1	UPD75217CW-040	IC	
IC2	IC-PST523H-2	IC	
IC3	SAA4700	IC, EG	
Q1	2SC3199(G)	TRANSISTOR	
	or 2SC3311A(RS)	TRANSISTOR	
Q5	DTC124ES	TRANSISTOR	
D1	RD9.1ES-T1B2	ZENER DIODE	
D2	1SS133	DIODE	
D3	1SS133	DIODE	
D4	11ES2	DIODE	
D5	11ES2	DIODE	
D7	1SS133	DIODE	
D8	1SS133	DIODE	
D24	1SS133	DIODE	
D31	1SS133	DIODE, EG	
D33	1SS133	DIODE	
R1	QRD161J-103	RESISTOR	10KΩ,1/6W
R4	QRD161J-682	RESISTOR	6.8KΩ,1/6W
R5	QRD161J-333	RESISTOR	33KΩ,1/6W
R6	QRD161J-333	RESISTOR	33KΩ,1/6W
R7	QRD161J-102	RESISTOR	1KΩ,1/6W
R8	QRD161J-103	RESISTOR	10KΩ,1/6W
R9	QRD161J-103	RESISTOR	10KΩ,1/6W
R10	QRD161J-103	RESISTOR	10KΩ,1/6W
R11	QRD161J-103	RESISTOR	10KΩ,1/6W
R12	QRD161J-333	RESISTOR	33KΩ,1/6W
R13	QRD161J-271	RESISTOR	270Ω,1/6W
R14	QRD161J-271	RESISTOR	270Ω,1/6W
R15	QRD161J-103	RESISTOR	10KΩ,1/6W
R16	QRD161J-103	RESISTOR	10KΩ,1/6W
R17	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R21	QRD161J-822	RESISTOR, EG	8.2KΩ,1/6W
R22	QRD161J-753	RESISTOR, EG	75KΩ,1/6W
R23	QRD161J-472	RESISTOR, EG	4.7KΩ,1/6W
R25	QRD161J-103	RESISTOR	10KΩ,1/6W
R26	QRD161J-103	RESISTOR	10KΩ,1/6W
R30	QRD161J-224	RESISTOR	220KΩ,1/6W
R31	QRD161J-151	RESISTOR, E	150Ω,1/6W
R32	QRD161J-271	RESISTOR	270Ω,1/6W
R33	QRD161J-271	RESISTOR	270Ω,1/6W
R36	QRD161J-103	RESISTOR	10KΩ,1/6W
R38	QRD161J-104	RESISTOR	100KΩ,1/6W
R40	QRD161J-271	RESISTOR	270Ω,1/6W
R41	QRD161J-103	RESISTOR	10KΩ,1/6W
R43	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R44	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R45	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R50	QRD161J-103	RESISTOR	10KΩ,1/6W
R51	QRD161J-103	RESISTOR	10KΩ,1/6W
R52	QRD161J-103	RESISTOR	10KΩ,1/6W
R53	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R54	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R55	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R56	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R57	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R58	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R59	QRD161J-102	RESISTOR	1KΩ,1/6W
R60	QRD161J-102	RESISTOR	1KΩ,1/6W
RA1	QRB047J-333	RESISTOR ARRAY	
	or QRB049J-333	RARRAY	
RA2	QRB047J-104	NETWORK RESISTOR	100KΩ,4W
	or QRB049J-104	NETWORK RESISTOR	100KΩ,4W
C1	QFJ41HJ-104	M CAPACITOR, EG	0.1μF,50V
C2	QFJ41HJ-104	M CAPACITOR, EG	0.1μF,50V
C3	QCVB1CN-103	CAPACITOR	0.01μF,16V
C4	QER61CM-106	E CAPACITOR	10μF,16V
C5	PU60676-104	E CAPACITOR, EG	0.1F
	or QEA40HZ-104	E CAPACITOR (DOUBLE), EG	0.1F,5.5V
C5	QEA40HZ-105	E CAPACITOR (DOUBLE), E	1F,5.5V
C6	QAT3123-200	TRIMMER CAPACITOR, TIMER CLOCK	20PF
C7	QCSB1HJ-120	CAPACITOR	12PF,50V
C8	QCF11HP-223	CAPACITOR, EG	0.022μF,50V
C9	QCXB1CN-472	CAPACITOR, EG	0.0047μF,16V
C10	QCBB1HJ-102	CAPACITOR, EG	0.001μF,50V
C11	QER61CM-106	E CAPACITOR	10μF,16V
C12	QCXB1CN-472	CAPACITOR, EG	0.0047μF,16V
C13	QCVB1CN-103	CAPACITOR	0.01μF,16V
C15	QCBB1HJ-101	CAPACITOR	100PF,50V
C16	QCBB1HJ-101	CAPACITOR	100PF,50V
C17	QCF11HP-473	CAPACITOR	0.047μF,50V
C18	QER61CM-106	E CAPACITOR	10μF,16V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C19	QER61CM-106	E CAPACITOR	10μF,16V
C20	QCBB1HJ-471	CAPACITOR, EG	470PF,50V
C21	QCVB1CN-103	CAPACITOR	0.01μF,16V
C22	QCBB1HJ-151	CAPACITOR	150PF,50V
⚠ X1	PU60226-4	CRYSTAL RESONATOR	
K1	PU60281-5	FERRITE BEADS	
TP1	PU56008	TEST-PIN	
CN1	PU59555-7	CAP HOUSING	
CN2	PU59555-8	CAP HOUSING	
CN3	PU59555-7	CAP HOUSING	
CN4	PU58844-3	CAP HOUSING	
CN5	PU58844-3	CAP HOUSING, E	
CN5	PU58844-5	CAP HOUSING, EG	
CN6	PU59555-7	CAP HOUSING	
CN9	PU59555-14	CAP HOUSING	
CN10	PU58844-12	CAP HOUSING	
⚠ CP1	ICP-F10	CIRCUIT PROTECTOR	

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CTL/IFR BOARD ASSEMBLY<24><34>

PWBA	PB20475B	CTL/IFR BOARD ASSY, EG	
PWBA	PB20475A	CTL/IFR BOARD ASSY, E	

- CONTROL BOARD ASSEMBLY<24> -

PWBA1	PB20475A1	CTL BOARD ASSY, E	
PWBA1	PB20475B1	CTL BOARD ASSY, EG	
D401	SLH-56VC3F	LE DIODE	
R401	QRD161J-331	RESISTOR	330Ω,1/6W
R402	PERE0476-01-01	V RESISTOR, HEAD PHONE LEVEL	
R403	PERE0474	V RESISTOR, MIC MIX LEVEL	
R404	PERE0473	V RESISTOR, REC LEVEL	
R405	PERE0472	V RESISTOR, REC BALANCE	
R406	PERE0464	V RESISTOR, PICTURE SHARPNESS	
LC1	PU59885-223	N FILTER, EG	
LC2	PU59885-223	N FILTER, EG	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
S401	PU57551	TACT SWITCH, POWER
S402	PU60392-2-2	TACT SWITCH, EJECT
S403	PESW0551	SLIDE SWITCH, EDIT SW
	or PESW0575	SLIDE SWITCH
S404	PESW0549	SLIDE SWITCH, AV IN/OUT SEL
	or PESW0573	SLIDE SWITCH
CL401	PU56729-2	WIRE CLAMP
CL402	PU56729	WIRE CLAMP
HD401	PQ40795-1-2	LED HOLDER
J401	PU60664	MINI JACK, HEAD PHONE
J402	PU60664-3	MINI JACK, MIC
SPC401	PU59210-001	W.LOKING SPACER
CN1	PU59555-8	CAP HOUSING
CN2	PU59555-8	CAP HOUSING
CN3	PU58844-3	CAP HOUSING
CN4	PU58844-2	CAP HOUSING
CN5	PU58844-5	CAP HOUSING
CN6	PU58844-3	CAP HOUSING

- IFR BOARD ASSEMBLY<34> -

PWBA2	PB20475A2	IFR BOARD ASSY
IC101	GP1U541X	IR DETECT UNIT

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SWITCH/DISPLAY BOARD ASSEMBLY <28>

PWBA	PB10426A	SW/DISPLAY BOARD ASSY, E
PWBA	PB10426B	SW/DISP BOARD ASSY, EG
IC102	M50253P	IC
IC103	MSC7112-01SS	IC
Q101	2SK658	FE TRANSISTOR
Q102	2SB643S	TRANSISTOR
Q103	DTC124ES	TRANSISTOR
D101	11ES2	DIODE
	or ERA15-02	DIODE
D102	SLH-34VC3F	LE DIODE

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
D103	SLH-34MC3F	LE DIODE	
D105	SLH-34DC3F	LE DIODE	
D106	SLH-34DC3F	LE DIODE	
D107	PESC0974	LE DIODE	
D108	SLH-34MC3F	LE DIODE	
D109	SLH-34MC3F	LE DIODE	
D110	SLH-34MC3F	LE DIODE	
D111	SLH-34DC3F	LE DIODE	
D112	SLH-34MC3F	LE DIODE	
D113	SLH-56MC3F	LE DIODE	
D129	1SS133	DIODE	
D130	UZ8.2BSA	ZENER DIODE	
R101	QRD161J-102	RESISTOR	1KΩ,1/6W
R102	QRD161J-102	RESISTOR	1KΩ,1/6W
R103	QRD161J-102	RESISTOR	1KΩ,1/6W
R104	QRD161J-273	RESISTOR	27KΩ,1/6W
R105	QRD161J-102	RESISTOR	1KΩ,1/6W
R106	QRD161J-103	RESISTOR	10KΩ,1/6W
R107	QRD161J-822	RESISTOR	8.2KΩ,1/6W
R108	QRD161J-271	RESISTOR	270Ω,1/6W
R109	QRD161J-271	RESISTOR	270Ω,1/6W
R111	QRD161J-271	RESISTOR	270Ω,1/6W
R112	QRD161J-271	RESISTOR	270Ω,1/6W
R113	QRD161J-271	RESISTOR	270Ω,1/6W
R114	QRD161J-271	RESISTOR	270Ω,1/6W
R115	QRD161J-271	RESISTOR	270Ω,1/6W
R116	QRD161J-271	RESISTOR	270Ω,1/6W
R117	QRD161J-273	RESISTOR	27KΩ,1/6W
R118	QRD161J-273	RESISTOR	27KΩ,1/6W
R119	QRD161J-473	RESISTOR	47KΩ,1/6W
R121	QRD161J-102	RESISTOR	1KΩ,1/6W
R122	QRD161J-102	RESISTOR	1KΩ,1/6W
R123	QRD161J-103	RESISTOR	10KΩ,1/6W
R124	QRD161J-103	RESISTOR	10KΩ,1/6W
R125	QRD161J-102	RESISTOR	1KΩ,1/6W
R126	QRD161J-333	RESISTOR	33KΩ,1/6W
C101	QCBB1HJ-101	CAPACITOR	100PF,50V
C102	QER61HM-104	E CAPACITOR	0.1μF,50V
C103	QER60JM-336	E CAPACITOR	33μF,6.3V
C104	QCVB1CN-103	CAPACITOR	0.01μF,16V
C105	QER61VM-106	E CAPACITOR	10μF,35V
C106	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C107	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C108	QER61CM-336	E CAPACITOR	33μF,16V
C115	QCSB1HJ-330	CAPACITOR	33PF,50V
C116	QCSB1HJ-330	CAPACITOR	33PF,50V
C117	QCF11HP-473	CAPACITOR	0.047μF,50V
S2	PU60392-2-2	TACT SWITCH, STOP	
S7	PU60392-2-2	TACT SWITCH, PLAY	
S8	PU60392-2-2	TACT SWITCH, PAUSE	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
S401	PESW0551	SLIDE SWITCH, ALC ON/OFF
	or PESW0575	SLIDE SWITCH
S402	PESW0551	SLIDE SWITCH, MAIN/SUB
	or PESW0575	SLIDE SWITCH
S403	PESW0551	SLIDE SWITCH, FORCED SW
	or PESW0575	SLIDE SWITCH
S404	PESW0551	SLIDE SWITCH, AC ON LINE
	or PESW0575	SLIDE SWITCH
S405	PESW0550	SLIDE SWITCH, REPEAT
	or PESW0574	SLIDE SWITCH
S406	PESW0550	SLIDE SWITCH, LEVEL IND
	or PESW0574	SLIDE SWITCH
FDP101	PEDP0019-02	FLUORESCENT DISPLAY PANEL, EG
⚠ FDP101	PEDP0019	FLUORESCENT DISPLAY PANEL, E
CL101	PU56729-2	WIRE CLAMP
CL102	PU55379	MINI CLAMP
HD101	PQ33372-1-2	HOLDER(FDP)
HD102	PQ44569	LED HOLDER
HD103	PQ40795-2-2	LED HOLDER
HD104	PU56940-2-2	LED HOLDER, X9
CN101	PU59555-106	CAP HOUSING
CN103	PU59513-12	CAP HOUSING
CN104	PU59555-3	CAP HOUSING
CN105	PEMC0773-012	CAP HOUSING
CN106	PU59555-104	CAP HOUSING
CN107	PU59555-5	CAP HOUSING

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PRE AMP BOARD ASSEMBLY <42>

PWBA	PB20473A	PRE AMP BOARD ASSEMBLY
IC1	TA8609F	IC
Q1	2SC2778	TRANSISTOR
Q2	2SC2778	TRANSISTOR
Q3	2SC2778	TRANSISTOR
Q4	2SC2778	TRANSISTOR
Q5	2SC2778	TRANSISTOR
Q6	2SC2778	TRANSISTOR
Q7	2SC2778	TRANSISTOR
Q8	2SC2778	TRANSISTOR
Q9	2SC2412K	TRANSISTOR
Q10	2SC2412K	TRANSISTOR
Q11	DTA124EK	TRANSISTOR

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
Q12	DTA124EK	TRANSISTOR	
Q13	DTC144EK	TRANSISTOR	
Q14	DTC144EK	TRANSISTOR	
D1	DAP202K	DIODE	
D2	DAP202K	DIODE	
R1	QRSA08J-100YN	RESISTOR	10Ω,1/10W
R2	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
R3	QRSA08J-100YN	RESISTOR	10Ω,1/10W
R4	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
R5	QRSA08J-100YN	RESISTOR	10Ω,1/10W
R6	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
R7	QRSA08J-100YN	RESISTOR	10Ω,1/10W
R8	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
R9	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R10	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R11	NVP1301-152N	V RESISTOR,HEAD RESON SP CH-1	1.5KΩ
R12	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R13	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R14	NVP1301-152N	V RESISTOR,HEAD RESON LP CH-2	1.5KΩ
R15	NVP1301-152N	V RESISTOR,HEAD RESON LP CH-1	1.5KΩ
R16	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R17	NVP1301-152N	V RESISTOR,HEAD RESON SP CH-2	1.5KΩ
R18	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R19	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R20	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R21	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R22	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R23	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R24	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R25	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R26	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R27	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
C1	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C2	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C3	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C4	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C6	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C7	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C8	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C9	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C10	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C11	PU60733-200	TRIMMER CAPACITOR,LP CH-2 F0	20PF
	or PECA0779-200X	CHIP TRIM CAP	
C12	PU60733-300	TRIMMER CAPACITOR,LP CH-1 F0	30PF
	or PECA0779-300X	TRIMMER CAPACITOR	
C13	PU60733-200	TRIMMER CAPACITOR,SP CH-2 F0	20PF
	or PECA0779-200X	CHIP TRIM CAP	
C14	PU60733-200	TRIMMER CAPACITOR,SP CH-1 F0	20PF
	or PECA0779-200X	CHIP TRIM CAP	
C15	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C16	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C17	QER41HM-105	E CAPACITOR	1μF,50V
C18	QCFA1HZ-103	CAPACITOR	0.01μF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C19	QER41HM-105	E CAPACITOR	1μF,5
C20	QER41HM-105	E CAPACITOR	1μF,5
C21	QCSA1HJ-101	CAPACITOR	100PF,5
C22	QER41HM-105	E CAPACITOR	1μF,5
C23	QCFA1HZ-103	CAPACITOR	0.01μF,5
C24	QER40JM-476	E CAPACITOR	47μF,6.
C25	QCFA1HZ-103	CAPACITOR	0.01μF,5
C30	QCFA1HZ-103	CAPACITOR	0.01μF,5
C31	QCFA1HZ-103	CAPACITOR	0.01μF,5
C32	QCFA1HZ-103	CAPACITOR	0.01μF,5
C33	QCFA1HZ-103	CAPACITOR	0.01μF,5
C34	QCFA1HZ-103	CAPACITOR	0.01μF,5
L1	PU59988-100J	COIL	10μ
L2	PU59988-120J	COIL	12μ
L3	PU59988-100J	COIL	10μ
L4	PU59988-120J	COIL	12μ
L5	PU48530-101K	COIL	100μ
SLD1	PQ33385A-2	SHIELD PLATE ASSEMBLY	
SLD2	PQ33468	SHIELD COVER(1)	
SLD3	PQ44696	SHIELD COVER(2)	
TP	PU56008	TEST-PIN	
CN1	PU56259-18	CAP HOUSING	
CN2	PU58844-3	CAP HOUSING	
CN3	YU40106-13	F.P.C CONN	

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REC BOARD ASSEMBLY <43>

PWBA	PB10404C-01	REC AMP BOARD ASSEMBLY
IC1	TA8733F	IC
IC2	JCP0005	IC
IC201	AN3380NK	IC
Q2	2SC4081(QRS)	TRANSISTOR
Q4	DTA124EU	TRANSISTOR
Q5	DTA124EU	TRANSISTOR
Q6	DTC144EU	TRANSISTOR
Q7	2SC4081(QRS)	TRANSISTOR
Q8	2SA1576(QR)	TRANSISTOR
Q9	2SC4081(QRS)	TRANSISTOR
Q10	2SC4081(QRS)	TRANSISTOR
Q13	2SA1576(QR)	TRANSISTOR

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
Q14	2SC4081(QRS)	TRANSISTOR	
Q15	2SA1576(QR)	TRANSISTOR	
Q16	DTC144EU	TRANSISTOR	
Q17	2SC4081(QRS)	TRANSISTOR	
Q18	2SC4081(QRS)	TRANSISTOR	
Q19	2SA1577(QR)	TRANSISTOR	
Q20	DTC124EU	TRANSISTOR	
Q21	2SA1577(QR)	TRANSISTOR	
Q23	2SC4081(QRS)	TRANSISTOR	
Q24	2SC4081(QRS)	TRANSISTOR	
Q25	DTC114EU	TRANSISTOR	
Q28	DTC144WU	TRANSISTOR	
Q29	2SA1267(YG)JK	TRANSISTOR	
	or 2SA933S(RS)	TRANSISTOR	
Q30	DTA124EU	TRANSISTOR	
Q31	DTC144WU	TRANSISTOR	
Q201	DTC124TU	CHIP TRANSISTOR	
Q202	DTC124TU	CHIP TRANSISTOR	
Q203	DTC114EU	TRANSISTOR	
Q204	2SC4081(QRS)	TRANSISTOR	
Q205	DTA114EU	TRANSISTOR	
Q206	DTC114EU	TRANSISTOR	
D1	DAN202U	DIODE	
D2	DAN202U	DIODE	
D3	DAN202U	DIODE	
D4	DAN202U	DIODE	
D5	DAN202U	DIODE	
D6	DAN202U	DIODE	
D203	1SS133	DIODE	
D204	1SS133	DIODE	
R1	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R2	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R3	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R4	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R5	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R6	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R7	QRSA08J-823YN	RESISTOR	82KΩ,1/10W
R9	QRSA08J-121YN	RESISTOR	120Ω,1/10W
R10	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R11	QRSA08J-431YN	RESISTOR	430Ω,1/10W
R12	QRSA08J-275YN	RESISTOR	2.7MΩ,1/10W
R17	QRSA08F-1693YN	RESISTOR	169KΩ,1/10W
R18	QRSA08F-1003YN	RESISTOR	100KΩ,1/10W
R19	QRSA08F-1433YN	RESISTOR	143KΩ,1/10W
R20	QRSA08F-1403YN	RESISTOR	140KΩ,1/10W
R21	QRSA08F-1203YN	RESISTOR	120KΩ,1/10W
R22	QRSA08F-1183YN	RESISTOR	118KΩ,1/10W
R23	QVPA603-104	V RESISTOR, REC FM ADJ	100KΩ,16W
R25	QRSA08J-513YN	RESISTOR	51KΩ,1/10W
R26	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R27	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R29	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R30	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
R31	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R32	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R33	QRSA08J-511YN	RESISTOR	510Ω,1/10W
R34	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R35	QVPA603-222	V RESISTOR,SP FREQ(SVHS)	2.2KΩ,16W
R36	QVPA603-222	V RESISTOR.LP FREQ(SVHS)	2.2KΩ,16W
R39	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R40	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R41	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R42	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R43	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R44	QRSA08J-751YN	RESISTOR	750Ω,1/10W
R45	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
R46	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R47	QRSA08J-151YN	RESISTOR	150Ω,1/10W
R48	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
R49	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
R50	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R51	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R52	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R53	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R57	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R58	QRSA08J-112YN	RESISTOR	1.1KΩ,1/10W
R59	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R60	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R61	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R62	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R63	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R64	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R65	QVPA603-682	V RESISTOR, SP FREQ(VHS)	6.8KΩ,16W
R66	QVPA603-332	V RESISTOR, LP FREQ(VHS)	3.3KΩ,16W
R69	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R70	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R71	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
R72	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
R73	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R74	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R75	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R76	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
R77	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R80	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R81	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R82	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R83	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R84	QRSA08J-390YN	RESISTOR	39Ω,1/10W
R85	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R86	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
R87	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R90	QVPA603-332	V RESISTOR, LP REC COLOR	3.3KΩ,16W
R91	QVPA603-332	V RESISTOR, SP REC COLOR	3.3KΩ,16W
R92	QRSA08J-563YN	RESISTOR	56KΩ,1/10W
R93	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
R94	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R95	QRSA08J-393YN	RESISTOR	39KΩ,1/10W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R96	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
R97	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R98	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R100	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R106	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R107	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R108	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R109	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
R201	NRVA62D-273N	RESISTOR	27KΩ,1/16W
R202	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R203	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R204	QRSA08J-274YN	RESISTOR	270KΩ,1/10W
R205	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R206	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R207	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R208	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R210	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R211	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
R212	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R213	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R214	QRSA08J-560YN	RESISTOR	56Ω,1/10W
R215	QRSA08J-560YN	RESISTOR	56Ω,1/10W
R216	QVZ3521-331Z	V RESISTOR,FMA REC LEVEL	330Ω
R217	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
C1	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C2	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C3	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C4	QCSA1HJ-121	CAPACITOR	120PF,50V
C5	QCSA1HJ-331	CAPACITOR	330PF,50V
C6	QCSA1HJ-121	CAPACITOR	120PF,50V
C7	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C8	QCSA1HJ-560	CAPACITOR	56PF,50V
C9	QCSA1HJ-271	CAPACITOR	270PF,50V
C10	QCSA1HJ-151	CAPACITOR	150PF,50V
C11	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C12	QER40JM-476	E CAPACITOR	47μF,6.3V
C13	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C14	QER41HM-104	E CAPACITOR	0.1μF,50V
C15	QFN41HJ-223	M CAPACITOR	0.022μF,50V
C16	QFN31HJ-223	M CAPACITOR	0.022μF,50V
C17	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C18	QCSA1HJ-101	CAPACITOR	100PF,50V
C19	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C20	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C21	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C22	QFN41HJ-223	M CAPACITOR	0.022μF,50V
C23	QFN41HJ-223	M CAPACITOR	0.022μF,50V
C24	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C26	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C27	QEK41CM-107	E CAPACITOR	100μF,16V
C28	QETA0JM-476	E CAPACITOR	47μF,6.3V
C29	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C30	QCSA1HJ-680	CAPACITOR	68PF,50V
C31	QCFA1HZ-103	CAPACITOR	0.01μF,50V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C32	QCSA1HJ-300	CAPACITOR	30PF,5
C33	QCFA1HZ-103	CAPACITOR	0.01μF,5
C34	QCSA1HJ-390	CAPACITOR	39PF,5
C38	QCSA1HJ-110	CAPACITOR	11PF,5
C39	QCSA1HJ-120	CAPACITOR	12PF,5
C40	QCSA1HJ-390	CAPACITOR	39PF,5
C42	QCFA1HZ-103	CAPACITOR	0.01μF,5
C43	QCFA1HZ-103	CAPACITOR	0.01μF,5
C44	QCSA1HJ-820	CAPACITOR	82PF,5
C45	QCSA1HJ-560	CAPACITOR	56PF,5
C48	QCSA1HJ-160	CAPACITOR	16PF,5
C49	QCSA1HJ-150	CAPACITOR	15PF,5
C50	QCSA1HJ-100	CAPACITOR	10PF,5
C51	QCSA1HJ-470	CAPACITOR	47PF,5
C52	QCFA1HZ-103	CAPACITOR	0.01μF,5
C54	QCFA1HZ-103	CAPACITOR	0.01μF,5
C55	QCFA1HZ-103	CAPACITOR	0.01μF,5
C57	QCSA1HJ-102	CAPACITOR	0.001μF,5
C58	QCFA1EZ-104	CAPACITOR	0.1μF,2
C61	QCFA1HZ-103	CAPACITOR	0.01μF,5
C62	QCFA1HZ-103	CAPACITOR	0.01μF,5
C63	QCFA1HZ-103	CAPACITOR	0.01μF,5
C64	QCFA1HZ-103	CAPACITOR	0.01μF,5
C65	QCFA1HZ-103	CAPACITOR	0.01μF,5
C66	QCSA1HJ-100	CAPACITOR	10PF,5
C67	QCFA1EZ-104	CAPACITOR	0.1μF,2
C69	QEP41HM-105	NP E CAPACITOR	1μF,5
C73	QCSA1HJ-101	CAPACITOR	100PF,5
C75	QCBB1HJ-101	CAPACITOR	100PF,5
C201	QCFA1EZ-104	CAPACITOR	0.1μF,2
C202	QCSA1HJ-391	CAPACITOR	390PF,5
C203	QCSA1HJ-561	CAPACITOR	560PF,5
C204	QCSA1HJ-102	CAPACITOR	0.001μF,5
C205	QCSA1HJ-561	CAPACITOR	560PF,5
C206	QCSA1HJ-102	CAPACITOR	0.001μF,5
C207	QCFA1CZ-224	CAPACITOR	0.22μF,1
C208	QCSA1HJ-391	CAPACITOR	390PF,5
C209	QEK60JM-107	E CAPACITOR	100μF,6
C210	QCYA1HJ-103	CAPACITOR	0.01μF,5
C211	QCYA1HJ-103	CAPACITOR	0.01μF,5
C214	QCSA1HJ-330	CAPACITOR	33PF,5
C215	QCSA1HJ-102	CAPACITOR	0.001μF,5
C216	QCYA1HJ-103	CAPACITOR	0.01μF,5
C217	QCSA1HJ-102	CAPACITOR	0.001μF,5
C218	QCSA1HJ-102	CAPACITOR	0.001μF,5
C219	QCYA1HJ-103	CAPACITOR	0.01μF,5
C220	QEK61EM-476	E CAPACITOR	47μF,2
C221	QCYA1HJ-103	CAPACITOR	0.01μF,5
C224	QCFA1CZ-224	CAPACITOR	0.22μF,1
L1	PU59988-181J	COIL	180
L2	PU59988-330J	COIL	33
L3	PU59988-820J	COIL	82
L4	PU59988-101J	COIL	100

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
L5	PU59988-330J	COIL	33μH
L6	PU48530-101K	COIL	100μH
L7	PU59988-5R6J	COIL	5.6μH
L8	PU48530-101K	COIL	100μH
L9	PU59988-560J	COIL	56μH
L10	PU59988-150J	COIL	15μH
L11	PU59988-470J	COIL	47μH
L12	PU59988-221J	COIL	220μH
L13	PU59988-100J	COIL	10μH
L14	PU59988-390J	COIL	39μH
L15	PU59988-270J	COIL	27μH
L16	PU59988-820J	COIL	82μH
L17	PU59988-180J	COIL	18μH
L18	PU59988-150J	COIL	15μH
L19	PU48530-101K	COIL	100μH
L20	PU59988-680J	COIL	68μH
L22	PU59988-181J	COIL	180μH
L23	PU59988-181J	COIL	180μH
L201	PU48530-101K	COIL	100μH
BPF201	PELN0374	BAND PASS FILTER	
CL1	PU59311-3	WIRE CLAMP	
CL2	PU56729-2	WIRE CLAMP	
SLD1	PQ21044-1-1	SHIELD FRAME	
SLD2	PQ21045-1-2	SHIELD CASE	
SLD3	PQ33421-1-1	SHIELD PLATE	
SPC1	PQM30029-147	SPACER	
TP5	PU60142-2	TEST PIN	
TP53	PU60142-2	TEST PIN,X2(TP53,TP54)	
CN1	PU56258-18	CAP HOUSING	
CN2	PU58844-3R	CAP HOUSING	
CN3	PU58844-3	CAP HOUSING	
CN4	PU59555-4	CAP HOUSING	
CN5	PU58844-8Y	CAP HOUSING	
CN6	PU58844-3	CAP HOUSING	
CN201	PU58844-8	CAP HOUSING	

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FLYING ERASE BOARD ASSEMBLY <46>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	PB30104B	FIYING ERASE BOARD ASSY	
Q1	2SA933S	TRANSISTOR	
Q2	2SC1741S(QR)	TRANSISTOR	
Q3	2SA933S(Q)	TRANSISTOR	
Q4	2SD639R	TRANSISTOR	
Q5	2SD639R	TRANSISTOR	
D1	UZ8.2BSC	ZENER DIODE	
D2	1SS133	DIODE	
	or MA165	DIODE	
R1	QRD161J-473	RESISTOR	47KΩ,1/6W
R2	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R3	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R4	QRD161J-473	RESISTOR	47KΩ,1/6W
R5	QRD161J-223	RESISTOR	22KΩ,1/6W
R6	QRD161J-104	RESISTOR	100KΩ,1/6W
R7	QRD161J-121	RESISTOR	120Ω,1/6W
R8	QRD161J-104	RESISTOR	100KΩ,1/6W
R9	QRD161J-121	RESISTOR	120Ω,1/6W
R10	QRD161J-101	RESISTOR	100Ω,1/6W
C1	QCVB1CN-103	CAPACITOR	0.01μF,16V
C2	QCC11EJ-123	CAPACITOR	0.012μF,25V
C3	QCSB1HJ-560	CAPACITOR	56PF,50V
C4	QCBB1HJ-820	CAPACITOR	82PF,50V
C6	QCBB1HJ-820	CAPACITOR	82PF,50V
C8	QCT25UJ-181	CAPACITOR	180PF
C9	QCT25UJ-330	CAPACITOR	33PF
L1	PU48530-560J	COIL	56μH
L2	PU48530-3R3K	COIL	3.3μH
L3	PU48530-3R3K	COIL	3.3μH
L4	PU59152-101J	COIL	100μH
⚠ T1	PU56175	S.TRANS	
SLD1	PU61041	SHIELD CASE	
SLD2	PU61042	SHIELD COVER	
SLD3	PU61043	SHIELD PLATE	
CN1	PU58844-3	CAP HOUSING	
CN2	PU58844-104	CAP HOUSING	

#⚠ REF No. PART No. PART NAME, DESCRIPTION

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DECK TERMINAL BOARD ASSEMBLY<51><55>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10481A	DECK TERMINAL BOARD ASSEMBLY	

- DECK TERMINAL BOARD ASSEMBLY<51> -

	PWBA1	PB10481A1	DECK TERMINAL BOARD ASSY	
	Q1	PU60625	E.SENSOR	
	R3	QRD161J-331	RESISTOR	330Ω,1/6W
	R4	QRD161J-331	RESISTOR	330Ω,1/6W
	R5	QRD161J-331	RESISTOR	330Ω,1/6W
	R8	NTH5D473KB	THERMISTOR	
		or ERT-D2ZHK473S	NEGA THERMISTOR	
	C1	QCVB1CM-103	CAPACITOR	0.01μF,16V
	PS1	PS5705HR	PH INTERRUPTER	
	PS2	PS5705HR	PH INTERRUPTER	
⚠	TH601	PU52108-1R0	POSITIVE THERMISTOR	
	CN1	PEMC0722-018	WIRE TRAP	
		or PEMC0753-018	WIRE TRAP	
	CN2	PU60642	7PIN CONNECTOR	
	CN3	PU60640	4PIN CONNECTOR	

- LOARDING MDA BOARD ASSEMBLY<55> -

	PWBA2	PB10481A2	LOADING MDA BOARD ASSY	
⚠	IC1	BA6418N	IC	
⚠		or XRA6418N	IC	
	C1	QETA1CM-227	E CAPACITOR	220μF,16V
	C2	QETA1HM-105	E CAPACITOR	1μF,50V
	CN1	PU59555-104	CAP HOUSING	

#⚠ REF No. PART No. PART NAME, DESCRIPTION

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CASSETTE HOUSING BOARD ASSEMBLY <56>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWB1	PB40061	CASSETTE HOUSING BOARD	
	Q2	PU60629	CASS.SENSOR	
	D1	UZ5.1BSB	ZENER DIODE	
		or RD5.1ESB2	ZENER DIODE	
	R1	QRD162J-473	RESISTOR	47KΩ,
	R2	QRD182J-681	RESISTOR	680Ω,
	R3	QRD122J-102S	RESISTOR	1KΩ,
	C1	QCC11EJ-103	CAPACITOR	0.01μF
	PS3	PN268VI	PHOTO TRANSISTOR	
	TH1	ERT-D2FHJ503S	THERMISTOR	
	CN2	PU60639	4PIN SOCKET	

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UPPER DRUM BOARD<62><63>

	PWB1	PDM3161	BOARD (UPPER DRUM), X2	

SECTION 6
TECHNICAL INFORMATIONS

6.1 CIRCUIT CONTROL CPU

1. IC601 (M37419M8-116SP)

PIN NO	LABEL	IN/OUT	NOTE							
1	Vcc	IN	UNSW 5V							
2	V. REF	IN	UNSW 5V							
3	LOADING MI	OUT	FWD	L	REV	H	BRAKE	H	STOP	L
4	LOADING M2	OUT		H		L		H		L
5	LOADING M3	–	NOT USED							
6	AVG FM	IN	AUTO TRACKING DATA INPUT							
7	THERM	IN	THERMIC CORRECTION							
8	MODE SW B	IN	MECHANISM MODE DETECT							
9	MODE SW A	IN								
10	MODE SW C	IN								
11	REC SAFETY SW	IN	REC SAFETY SW DETECT(ON:L)							
12	START SENSOR	IN	START SENSOR, LEADER TAPE DETECT(ON:L)							
13	DRUM CTL VOLT	OUT	DRUM MOTOR CONTROL/CORRECTION							
14	CAPSTAN CTL VOLT	OUT	CAPSTAN MOTOR CONTROL/CORRECTION							
15	CASSETTE SENSOR	IN	CASSETTE INPUT/OUTPUT DETECT(ON:L)							
16	END SENSOR	IN	TRAILER TAPE DETECT(ON:L)							
17	DRUMM FF	IN	DRUM MOTOR SPEED DETECT AMD TIMING CONTROL							
18	CTL PULSE	IN	MODE DETECT, BLANK TAPE DETECT							
19	CAPSTAN REV	OUT	CAPSTAN MOTOR CONTROL(FWD:H, REV:L)							
20	V. PULSE	OUT	SPECIAL PB, V. STABILIZER:ON							
21	HEAD SELECT	OUT	SP:L, LP:H							
22	BEST SEARCH	OUT	BEST SEARCH:H, NORMAL:L							
23	S. CASSETTE	IN	S-VHS TAPE IN:L							
24	SUPPLY REEL FG	IN	SUPPLY REEL ROTATION DETECT, TAPE REMAINING							
25	TAKE-UP REEL FG	IN	TAKE-UP REEL ROTATION DETECT, TAPE REMAINING							
26	CAPSTAN FG	IN	MODE DETECT, TAPE REMAINING							
27	CN Vss	–	GND							
28	RESET	IN	AC IN RESET							
29	X IN	IN	MAIN SYSTEM CLOCK(4MHz)							
30	X OUT	OUT								
31	ϕ	–	NC							
32	Vss	–	GND							
33	POWER CTL	OUT	POWER ON:H, OFF:L							
34	AUDIO MUTE	OUT	AUDIO MUTE:H							
35	AUDIO ERASE H. CTL	OUT	AUDIO ERASE HAED ON:H							
36	TEXT	OUT	TELETEXT:L							
37	REC START	OUT	REC START:H							
38	FLYING ERASE H. CTL	OUT	FLYING ERASE HEAD ON:H							
39	FM DET	IN	S-VHS PB:H, VHS:L							
40	HiFi REC START	OUT	HiFi REC START:L							
41	AUDIO SERIAL CLOCK	OUT	AUDIO SERIAL DATA TRANSFER CLOCK							
42	DROP OUT CTL	IN	FM AUDIO DETECT							
43	CH+ DATA	–	NOT USED							
44	AUDIO SERIAL DATA	OUT	AUDIO CONTROL SERIAL DATA							
45	C. AUTO JUMP STOP	OUT	COLOR AUTO JUMP STOP							
46	C. 1H JUMP	OUT	COLOR 1H JUMP CONTROL							
47	SERVO SERIAL DATA	OUT	16BIT SERIAL DATA FOR SERVO IC							
48	INDEX	IN/OUT	INDEX DATA(VISS) WRITE CONTROL AND DETECT(ON:L)							
49	MEMORY DATA	IN/OUT	MEMORY DATA(SLOW TR DATA, CH SKIP/STOR ETS)							
50	MEMORY CE	OUT	MEMORY IC CHIP ENABLE							
51	CLOCK	OUT	SERIAL DATA TRANSFER CLOCK							
52	PLL LOCK	IN	TUNING CONDITION DETECT							
53	SYNC DET	IN	SYNC DETECT, BLUE BACK CONTROL							
54	PLL DATA	OUT	TUNING DATA							
55	TUNER CTL	OUT	TUNER ON:H							
56	EXP DATA	OUT	16BIT EXPANDED DATA							
57	SECAM DET	IN	SECAM DETECT:L, PAL:H							
58	TRICK	OUT	SPECIAL PB:L							
59	R. REV	OUT	RETAKE REVERSE:L							
60	PAUSE	OUT	CAPSTAN MOTOR CONTROL(PAUSE:L, NORMAL:H)							
61	SERVO	OUT	CAPSTAN MOTOR CONTROL(SERVO:H, MECHACON:L)							
62	TIMER SERIAL CLOCK	IN	TIMER/MECHACON SERIAL DATA TRANSFER CLOCK							
63	TIMER SERIAL DATA	IN/OUT	TIMER/MECHACON SERIAL DATA							
64	REMOTE PAUSE	IN	REMOTE PAUSE:L							

Table 6-1 IC601 pin function

6.2 TIMER CPU

2. IC1 (UPD75217CW-040)

NO	SYMBOL	LABEL	IN/OUT	NOTE
1	S3	Sd	OUT	KEY SCAN PULSE OUTPUT
2	S2	Sc	OUT	
3	S1	Sb	OUT	
4	S0	Sa	OUT	
5	P00/INT4	POWER DOWN	IN	POWER DOWN DETECT:L
6	P01/SCK	OS/DISP CLOCK	OUT	ON SCREEN/DISPLAY DATA TRANSFER CLOCK
7	P02/SO	OS/DISP DATA	OUT	ON SCREEN/DISPLAY SERIAL DATA
8	P03/SI	TEST	IN	TEST POINT(CLOCK ADJUST/FDP CHECK)
9	P10/INT0	REMOTE	IN	16BIT REMOTE DATA(A/B CODE)
10	P11/INT1	CATV CTL	IN	NOT USED
11	P12/INT2	CTL PULSE	IN	LINEAR TIME COUNTER DATA
12	P13/T10	CTL PULSE	IN	LINEAR TIME COUNTER DATA
13	P20	KS 0	IN	KEY SCAN DATA INPUT
14	P21	KS 1	IN	
15	P22	KS 2	IN	
16	P23/BUZ	KS 3	IN	
17	P30	MECHACON DATA	IN/OUT	MECHACON/TIMER SERIAL DATA
18	P31	MECHACON CLOCK	OUT	MECHACON/TIMER DATA TRANSFER CLOCK
19	P32	SERIAL DATA	IN/OUT	VIDEO PROGRAM SYSTEM SERIAL DATA:I²C BUS
20	P33	SERIAL CLOCK	OUT	VIDEO PROGRAM SYSTEM DATA TRANSFER CLOCK
21	P60	OS CS	OUT	ON SCREEN IC CHIP SELECT:L
22	P61	OS RESET	OUT	ON SCREEN IC RESET:L
23	P62	DISP CE	OUT	DISPLAY IC CHIP ENABLE:L
24	P63	AUDIO INT	OUT	AUDIO CONTROL IC CHIP SELECT:L
25	P40	LED CLOCK	OUT	LED SERIAL DATA TRANSFER CLOCK
26	P41	LED SERIAL DATA	OUT	LED SERIAL DATA
27	P42	AUDIO CLOCK	OUT	AUDIO CONTROL SERIAL DATA TRANSFER CLOCK
28	P43	PROGRAM	OUT	PROGRAM BLUE BACK MODE:H
29	PPO	NC	–	NC
30	X1	X1	IN	MAIN SYSTEM CLOCK(4.19MHz)
31	X2	X2	–	
32	Vss	Vss	–	GND
33	XT1	XT1	IN	GND
34	XT2	XT2	–	NC
35	P50	JS/B	IN	JOG DIAL PULSE INPUT
36	P51	SHUTTLE	IN	SHUTTLE SW(PLAY/PAUSE:L, SEARCH:H)
37	P52	JS/A	IN	JOG DIAL PULSE INPUT
38	P53	AUDIO DATA	OUT	AUDIO CONTROL SERIAL DATA
39	RESET	RESET	IN	RESET AT CONNECT VCR TO AC
40	T0	NC	–	NC
41	T1	NC	–	
42	T2	NC	–	
43	T3	NC	–	
44	T4	NC	–	
45	T5	NC	–	
46	T6	NC	–	
47	T7	NC	–	
48	T8	NC	–	
49	T9	NC	–	
50	T10/S15/PH3	Sp	OUT	KEY SCAN PULSE OUTPUT
51	T11/S14/PH2	So	OUT	
52	T12/S13/PH1	Sn	OUT	
53	T13/S12/PH0	Sm	OUT	
54	T14/S11	Sl	OUT	
55	T15/S10	Sk	OUT	
56	V LOAD	V LOAD	IN	GND
57	V PRE	V PRE	IN	GND
58	S9	Sj	OUT	KEY SCAN PULSE OUTPUT
59	S8	Si	OUT	
60	S7	Sh	OUT	
61	S6	Sg	OUT	
62	S5	Sf	OUT	
63	S4	Se	OUT	
64	VDD	VDD	–	5V FOR THE SYSTEM CONTROL

Table 6-2 IC1 pin function